

# Applied Mechanics Reviews

*A Critical Review of the World Literature in Applied Mechanics*

L. H. DONNELL, *Editor*

T. VON KÁRMÁN, S. TIMOSHENKO, *Editorial Advisers*

Index to Subjects, Volume 1, 1948 . . . . .	305
Index to Authors, Volume 1, 1948 . . . . .	312
Periodicals Now Being Regularly Scanned (Supplementary List) .	339
List of Reviewers . . . . .	343
Other Reviewing or Abstracting Services . . . . .	351

Published by The American Society of Mechanical Engineers

December 1948

Vol. 1, No. 12

# Applied Mechanics Reviews

Published Monthly by The American Society of Mechanical Engineers  
at Easton, Pa., with the co-operation of

THE OFFICE OF NAVAL RESEARCH

AMERICAN SOCIETY OF CIVIL ENGINEERS

INSTITUTE OF THE AERONAUTICAL SCIENCES

SOCIETY FOR EXPERIMENTAL STRESS ANALYSIS

ILLINOIS INSTITUTE OF TECHNOLOGY

THE ENGINEERING INSTITUTE OF CANADA

THE ENGINEERING FOUNDATION

AMERICAN INSTITUTE OF PHYSICS

AMERICAN MATHEMATICAL SOCIETY

THE INSTITUTION OF MECHANICAL ENGINEERS

## OFFICERS OF ASME:

E. G. BAILEY, *President*

K. W. JAPPE, *Treasurer*

C. E. DAVIES, *Secretary*

## ASME MANAGING COMMITTEE:

G. B. PEGRAM, *Chairman*

H. L. DRYDEN

J. S. THOMPSON

W. M. MURRAY, *ASME Applied Mechanics Division*

## ADVISORY BOARD:

R. E. PETERSON (ASME), *Chairman*

R. D. MINDLIN (SESA), *Secretary*

R. COURANT (AMS)

G. R. RICH (ASCE)

F. V. HUNT (AIP)

H. W. SWIFT (IME)

L. H. DONNELL (IIT)

K. S. M. DAVIDSON (IAS)

V. MORKOVIN (ONR)

J. J. GREEN (EIC)

## EDITORIAL STAFF:

L. H. DONNELL, *Editor*

A. W. WUNDHEILER, *Associate Editor*

T. VON KÁRMÁN, S. TIMOSHENKO, *Editorial Advisers*

A. J. DURELLI,

J. E. GOLDBERG,

A. D. KAFADAR,

E. F. LYPE,

D. R. MAKEVICH,

E. VEY, *Assistant Editors*

*Editorial Office:* APPLIED MECHANICS REVIEWS, Illinois Institute of Technology, Chicago 16, Ill., USA.

*Subscription and Production Office:* The American Society of Mechanical Engineers, 29 West 39th St., New York 18, N. Y., USA.

**PHOTOSTAT SERVICE:** Photostatic copies of all articles reviewed in this issue will be provided by the editors on request. Orders should specify the review number; should be addressed to APPLIED MECHANICS REVIEWS, Illinois Institute of Technology, Chicago 16, Ill., USA; and should be accompanied by a remittance to cover cost, amounting to 25 cents for each page of the article photostated. Minimum charge \$1.00. (Applicant assumes responsibility for questions of copyright arising from this copying and the use made of copies. Copyright material will not be reproduced beyond recognized "fair use" without consent of copyright owner.)

**ABBREVIATIONS:** In abbreviating the titles of periodicals the standard employed in the World List of Scientific Periodicals, Oxford University Press, London, has been followed. In this usage prepositions, articles, and other unimportant words are omitted. Enough of each word is retained to make its meaning obvious, except in the case of common periodical designations such as: J. (Journal); G. (Giornale); C. R. (Comptes Rendus); Z. (Zeitschrift); R. C. (Rendiconti).

Abbreviations of units follow the standard of Abbreviations for Scientific and Engineering Terms of the Am. Standards Assoc. Examples: psi (pounds per square inch); cps (cycles per second); mph (miles per hour).

APPLIED MECHANICS REVIEWS, December 1948, Vol. 1, No. 12. Published monthly by The American Society of Mechanical Engineers at 20th and Northampton Streets, Easton, Pa., USA. The editorial office is located at the Illinois Institute of Technology, Chicago 16, Ill., USA. Headquarters of ASME, 29 West 39th St., New York 18, N. Y., USA. Cable address "Dynamic," New York. Price \$1.50 per copy, \$12.50 a year; to members of ASME and co-operating societies \$0.75 per copy, \$9 a year. Changes of address must be received at Society headquarters three weeks before they are to be effective on the mailing list. Please send old as well as new address. . . . By-Laws: The Society shall not be responsible for statements or opinions advanced in papers or printed in its publications (B13, Par. 4). . . . Entered as second-class matter, January 11, 1948, at the Post Office at Easton, Pa. under the Act of March 3, 1897. . . . Copyrighted, 1948, by The American Society of Mechanical Engineers.

# Applied Mechanics Reviews

A Critical Review of the World Literature in Applied Mechanics

December 1948

Vol. 1, No. 12

## Index to Subjects

Vol. 1, 1948

(Numbers used are serial numbers of reviews)

### A

ABSORPTION of heat (see Radiation and absorption)  
ABSORPTION of sound (see Sound absorption)  
ACCELEROMETERS ..... 6, 1147  
ACOUSTIC tests of material properties ..... 293, 663, 664  
ACOUSTICS, architectural (see also Architectural acoustics; Sound transmission) ..... 222, 1710  
ACOUSTICS, general (see Architectural acoustics; Crystals, sound waves in; Noise; Reverberations; Sonic exploration; Sound absorption; Sound attenuation; Sound generation; Sound in water, etc.; Sound-measuring instruments; Sound propagation; Sound transmission; Sound velocity; Ultra and infrasounds)  
AERODYNAMIC coefficients of airfoils (see Airfoil theory)  
AERODYNAMIC coefficients of projectiles (see also Airfoil theory; Projectiles) ..... 741, 917, 1665, 1691  
AERODYNAMICS of flight, wind forces, general (see Airfoils, hydrofoils; Airplanes and gliders; Air resistance of structures; Airships; Alighting and take-off; Cascades; Controls; Down-wash and up-wash; Drag; Flight path; Guided missiles; Gusts; Helicopters; Interference and coupling; Jet-propelled aircraft; Lift and high-lift devices; Loads, maneuvering; Parachutes and other sinking bodies; Performance; Pressure distribution; Projectiles; Rockets; Seaplanes and flying boats; Spinning; Stability; Thrust, propeller; Wings, attached; Wings, sweptback)  
AEROELASTIC effects on air load distribution ..... 703, 720, 885, 1033, 1231, 1530, 1658  
AEROELASTIC effects on stability and control ..... 720, 885, 1160, 1269, 1448  
AEROELASTICITY, general (see Aeroelastic effects; Divergence; Flutter, helicopter; Flutter, methods of studying; Flutter, wing; Vibration due to wind; Vibrations of musical instruments)  
AERONAUTICAL structures ..... 48, 53, 67, 76, 79, 83, 85, 240, 268, 396, 448, 449, 450, 451, 453, 454, 604, 618, 619, 623, 626, 633, 638, 639, 708, 775, 810, 815, 823, 825, 826, 968, 1014, 1100, 1114, 1326, 1463, 1616  
AIR load distribution (see Aeroelastic effects on)  
AIR resistance of structures ..... 7, 1194, 1338  
AIRFOIL cascades (see Cascades, lifting surface)  
AIRFOIL, oscillating, compressible flow ..... 156, 1035, 1160, 1530  
AIRFOIL, oscillating, incompressible flow ..... 512, 537, 538, 1231, 1693  
AIRFOIL theory, compressible flow ..... 160, 340, 493, 521, 522, 536, 694, 719, 1010, 1013, 1016, 1019, 1041, 1160, 1503, 1663, 1668  
AIRFOILS, hydrofoils, general ..... 345, 347, 348, 349, 357, 358, 493, 505, 510, 511, 512, 513, 515, 521, 522, 524, 525, 527, 528, 529, 530, 531, 532, 534, 535,

ISSUE	REVIEW NUMBERS
January	1- 200
February	201- 389
March	390- 575
April	576- 757
May	758- 932
June	933-1077
July	1078-1168
August	1169-1304
September	1305-1440
October	1441-1579
November	1580-1726
December	Indexes

AIRFOILS (continued)  
536, 537, 538, 546, 672, 675, 677, 678, 680, 693, 694, 698, 699, 713, 714, 718, 869, 877, 878, 880, 881, 882, 883, 887, 988, 1001, 1008, 1010, 1012, 1013, 1016, 1017, 1018, 1021, 1030, 1032, 1244, 1251, 1254, 1257, 1261, 1265, 1379, 1382, 1390, 1397, 1398, 1405, 1503, 1527, 1528, 1693, 1701  
AIRPLANES and gliders ..... 149, 151, 317, 321, 333, 351, 353, 498, 499, 508, 513, 519, 520, 523, 529, 533, 689, 692, 693, 695, 696, 697, 698, 699, 702, 707, 708, 710, 712, 713, 714, 827, 866, 875, 876, 877, 878, 879, 880, 885, 890, 907, 991, 999, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1013, 1015, 1017, 1018, 1020, 1022, 1023, 1024, 1025, 1026, 1027, 1029, 1043, 1072, 1150, 1154, 1156, 1159, 1405, 1512, 1672, 1674  
AIRSHIPS ..... 180, 527  
ALIGHTING and take-off ..... 703, 775, 904, 989  
ALUMINUM and magnesium alloys, mechanical properties of ..... 95, 100, 113, 115, 118, 292, 417, 446, 468, 470, 624, 625, 640, 643, 656, 842, 843, 844, 1210, 1211, 1221, 1357, 1370, 1372, 1481, 1638, 1639, 1644  
ANALOG computers ..... 202  
ANALOGIES ..... 12, 13, 201, 202, 271, 298, 761, 908, 1044, 1079, 1624  
ANALOGY, water-table (see Water-table analogy)  
ANEMOMETER, hot-wire ..... 363, 551, 896, 897, 1276, 1540, 1686  
ANISOTROPIC mediums, elasticity theory ..... 41, 42, 43, 420, 597, 1103, 1198, 1643  
ANISOTROPIC mediums, plates or shells ..... 65, 258, 263, 630, 1201, 1327, 1328, 1330, 1459, 1616  
ARCHES, buckling of (see Rings and arches)  
ARCHITECTURAL acoustics ..... 222, 1710  
ATMOSPHERE, properties of ..... 198, 377, 378, 559, 561, 1063, 1064, 1166, 1168, 1179, 1298, 1432, 1435, 1436, 1567, 1569  
ATMOSPHERE, upper, data on ..... 706

ATTENUATION of sound (see Sound attenuation)  
AUTOGYROS (see Helicopters, etc.)  
AUTOMATIC regulation (see Control mechanisms)

### B

BALANCES, wind-tunnel ..... 1045, 1046  
BALANCING machines ..... 21  
BALANCING of engines, etc. .... 1444, 1445  
BALLISTIC instrumentation ..... 1691  
BALLISTICS, detonics or explosions, general (see Aerodynamic coefficients of projectiles; Ballistic instrumentation; Ballistics, exterior; Ballistics, interior; Ballistics, terminal; Deflagrations; Explosion effects; Fuses; Recoil; Rocket projectiles; Stability, projectile; Trajectories, projectile)  
BALLISTICS, exterior ..... 382, 493, 562, 742, 912, 915, 1065, 1256, 1422, 1423  
BALLISTICS, interior ..... 181, 183, 184, 210, 563, 564, 753, 1151, 1424, 1675, 1714  
BALLISTICS, terminal ..... 1300  
BASINS, tow, marine ..... 1060, 1062  
BEAMS (see Bending; Elastic foundation or support; Lateral buckling of; Statically indeterminate; Transverse shear)  
BEARING capacity and settlement of soils ..... 669, 853, 1230, 1563, 1564  
BEARING capacity of soils under dynamic conditions ..... 457, 783, 1425, 1427  
BEARING plates (see Concentrated loads on plates or shells)  
BEARINGS, heat rise in ..... 200, 374, 735, 1439, 1441  
BEARINGS, oilless ..... 906  
BEARINGS, performance and capacity ..... 175, 375, 556, 557, 905, 1293, 1294, 1447, 1579  
BEARINGS, pressure distribution ..... 172, 176, 735  
BEARINGS (see Lubrication)  
BENDING of beams ..... 23, 51, 52, 55, 56, 57, 77, 218, 243, 244, 245, 261, 268, 410, 419, 443, 453, 582, 585, 605, 606, 611, 628, 632, 634, 636, 638, 645, 794, 796, 824, 940, 947, 949, 950, 961, 1101, 1102, 1103, 1120, 1192, 1198, 1201, 1456, 1608, 1623, 1624, 1639  
BENDING, shear, other static tests, properties of specific materials obtained in ..... 87, 466, 664, 838, 986, 1130, 1137, 1357, 1639  
BENDING, shear and other static tests, technique of ..... 108, 795, 1130, 1364, 1365, 1426, 1636, 1637  
BENTS (see Frames)  
BIAXIAL (see Multiaxial)  
BOATS, flying (see Seaplanes and flying boats)  
BOLTED joints (see Riveted, bolted joints)  
BOND, strength of in reinforced concrete ..... 445  
BOUNDARY layer, general (see also Boundary layer in compressible flow; Boundary layer, laminar, thermal; Transition and separation; Viscous flow, slow) ..... 125, 126, 127, 129, 319, 320, 321, 328, 329, 335, 352, 481, 483, 484, 485, 486,



**BOUNDARY** (*continued*)  
 487, 488, 493, 571, 675, 677, 678, 679,  
 680, 857, 862, 866, 869, 882, 883, 991,  
 992, 1047, 1143, 1144, 1156, 1207, 1235,  
 1238, 1253, 1291, 1375, 1380, 1393, 1395,  
 1488, 1517, 1518, 1524, 1669, 1670, 1686, 1701  
**BOUNDARY layer in compressible flow**..... 1238  
**BOUNDARY layer, laminar**..... 992, 1253  
**BOUNDARY layer, thermal**..... 332, 1026, 1074, 1238, 1438, 1701  
**BOURDON tubes, theory of**..... 1609  
**BRAZED and soldered joints**..... 272, 817, 1464  
**BRIDGES**.....  
 77, 78, 85, 270, 628, 630, 631, 632, 794,  
 821, 1101, 1120, 1138, 1206, 1338, 1345, 1347  
**BRITTLE coatings and brittle models for experimental stress analysis**..... 46, 240, 790, 792  
**BRITTLE crack propagation (see Crack propagation)**  
**BRITTLE shear failure**..... 1204, 1205, 1212, 1321, 1469, 1628  
**BRITTLE tensile failure**..... 276  
**BRITTLENESS, factors promoting (see Embrittlement factors)**  
**BUCKLING problems, general (see Column; Dynamic load; Effective width; Elastic foundation or end support; Initial deformations; Initial stresses, effect; Lateral buckling of beams; Pipes and vessels; Plate; Rings and arches; Sheet-stringer; Shell; Stability theory, general; Structural members; Structures; Transverse shear; Yielding)**  
**BUILDING structures**.....  
 80, 119, 636, 637, 821, 964, 1138, 1341, 1622

**C**

**CABLES and other flexible filaments**.....  
 7, 245, 421, 820, 1461, 1620, 1718  
**CABLES, vibrations of (see Vibrations of rods, etc.)**  
**CANALS and channels, flow in**.....  
 202, 365, 368, 400, 403, 552,  
 553, 558, 901, 1054, 1055, 1279, 1280,  
 1283, 1286, 1482, 1483, 1491, 1524, 1651, 1659  
**CAPILLARITY**..... 367, 398, 399, 1536, 1652, 1655  
**CASCADES of lifting surfaces**..... 149,  
 317, 357, 358, 482, 509, 510, 515, 542,  
 724, 725, 860, 882, 894, 988, 1011, 1040,  
 1140, 1271, 1400, 1495, 1498, 1660, 1685, 1686  
**CAST iron, mechanical properties of**..... 1642  
**CAVITATION**.....  
 162, 170, 555, 733, 1059, 1281, 1285,  
 1287, 1292, 1486, 1489, 1492, 1499, 1654, 1656  
**CEMENTED joints**..... 966, 982  
**CENTER of twist**..... 75, 1105  
**CERAMIC materials, etc., mechanical properties of**..... 299, 841, 1135, 1368  
**CHANNELS, compressible flow in**.....  
 183, 541, 681, 723, 728, 729, 1399, 1507  
**CHANNELS, incompressible flow in (see also Canals)**..... 202, 322, 1054, 1235, 1483, 1497  
**CHANNELS, shocks in**..... 730  
**CHANNELS, waves in open (see Waves in open channels)**  
**CHARACTERISTICS, method of, supersonic flow (see also Wave propagation)**..... 684, 1147, 1151, 1516  
**CHEMICAL reactions, thermodynamics of**.....  
 185, 745, 918,  
 922, 1067, 1069, 1409, 1410, 1424, 1697, 1698  
**COHESIVE failure**..... 276  
**COLUMN formulas and experiments**.....  
 70, 435, 436, 437,  
 438, 439, 441, 618, 805, 1113, 1119, 1206, 1326  
**COLUMN theory**.....  
 70, 72, 76, 257, 260, 261, 428, 429, 433,  
 434, 439, 441, 606, 611, 621, 622, 805,  
 812, 960, 961, 963, 1206, 1332, 1461, 1615, 1620  
**COMBINED loading of rods, beams, etc.**.....  
 1104, 1597  
**COMBUSTION and deflagration**.....  
 331, 564, 746, 921,  
 1067, 1381, 1407, 1408, 1409, 1410, 1515, 1698  
**COMBUSTION, effect on turbulence**..... 1522  
**COMPOSITE plates or shells (see Sandwich materials, plates or shells)**  
**COMPOSITE rods**.....  
 632, 796, 821, 1118, 1198, 1201, 1454, 1597, 1615

**COMPOUND stresses (see Multiaxial stresses)**  
**COMPRESSIBLE flow, gas dynamics, general (see also Airfoil, oscillating; Airfoil theory; Boundary layer; Channels; Characteristics, method of; Correction methods; Deflagrations; Detonations; Diabatic flow; Diffusers; Drag, aerodynamic; Heat transfer in flow; Jets; Linearized theory; Projectiles and fuselage; Shock waves; Slip and free-molecule flow; Subsonic flow; Supersonic flow; Surface waves; Transonic flow; Unsteady flow; Vortical flow; Wings, compressible flow)**..... 482, 492, 503, 856, 998, 1661  
**COMPRESSION member (see Column)**  
**COMPRESSION properties of specific materials**..... 662, 842, 986, 987, 1137, 1637, 1641  
**COMPRESSION test technique**.....  
 109, 789, 971, 984, 1113, 1216, 1364, 1637  
**COMPRESSORS, axial flow**..... 359, 539, 541,  
 542, 724, 725, 892, 1036, 1039, 1040,  
 1041, 1271, 1275, 1400, 1419, 1492, 1531, 1686  
**COMPRESSORS, centrifugal**..... 202,  
 312, 360, 1038, 1042, 1273, 1492, 1531, 1533  
**COMPUTING machines**..... 2, 18, 159,  
 202, 203, 204, 226, 758, 759, 760, 933, 1078  
**CONCENTRATED loads on plates or shells**..... 61, 62, 627, 1612  
**CONCENTRATION, stress (see Stress concentration, theoretical; Stress concentration, experimental)**  
**CONCRETE and masonry, mechanical properties of**..... 114, 116,  
 269, 301, 445, 469, 658, 822, 1118, 1230,  
 1339, 1346, 1368, 1371, 1477, 1479, 1637, 1640  
**CONCRETE structures (see Reinforced concrete structures; Prestressed concrete)**  
**CONNECTIONS (see Joints and joining method)**  
**CONSOLIDATION and stabilization of soils**..... 853, 1564  
**CONTACT stresses and strains**..... 208, 410, 787, 789, 1322  
**CONTROL (see Aeroelastic effects on; Control mechanisms; Rudders; Vehicle motion)**  
**CONTROL mechanisms (see also Guided missiles)**..... 10, 11,  
 14, 392, 580, 770, 1037, 1051, 1309, 1441, 1583  
**CONTROLS, airplane**..... 325, 351, 371, 519, 523, 527, 530,  
 533, 692, 693, 696, 699, 710, 711, 712,  
 715, 716, 885, 1005, 1006, 1009, 1015,  
 1020, 1023, 1024, 1025, 1027, 1030, 1154,  
 1257, 1267, 1270, 1402, 1526, 1663, 1673, 1678  
**CONVECTION, forced**..... 195, 493, 571,  
 926, 995, 1026, 1074, 1168, 1433, 1439, 1703  
**CONVECTION, free**..... 177, 195, 749, 903, 932, 1074, 1704, 1717  
**CORDS (see Cables)**  
**CORRECTION methods, compressible flow**..... 340, 1665  
**CORROSION and weathering test techniques**..... 641, 838, 1126  
**CORROSION, effect on strength of specific materials**..... 641, 651  
**COUPLING, aerodynamic (see Interference and coupling)**  
**CRACK detection**..... 44, 105, 664, 1218  
**CRACK propagation**..... 89, 90, 276, 283, 458, 830, 837, 1356  
**CRANKS (see Curved bars)**  
**CREEP and relaxation test technique**..... 643, 985, 1351, 1471, 1473, 1476  
**CREEP and relaxation tests, significance of**..... 103  
**CREEP properties of specific materials**..... 112, 182,  
 300, 302, 643, 656, 845, 1221, 1367, 1472, 1474  
**CREEP, theory of**..... 94, 98, 114, 257, 643, 648, 828, 1125, 1221, 1631  
**CRITICAL speed, hydraulic**..... 740, 1236  
**CRYSTAL, single, mechanical properties of**..... 91, 1136  
**CRYSTAL, sound waves in**..... 1556  
**CURRENTS, ocean (see also Ocean currents)**..... 1434, 1719  
**CURVATURE, initial, effect on buckling**..... 65, 66, 618  
**CURVED bars**..... 209, 420, 617, 795, 950, 1193  
**CUTOUTS in structures**..... 454, 623, 629, 810, 1463  
**CUTTING processes**..... 280, 849, 1646, 1649  
**CUTTING tools, strength of**..... 49  
**CYCLES, thermodynamic**..... 746, 1042, 1071, 1545

## D

**DAMAGE, shock (see Shock damage)**  
**DAMPING capacity of materials (see Internal friction)**  
**DAMPING of vibrations (see Vibration damping)**  
**DAMS (see also Weirs)**..... 81, 84, 635, 668, 670, 970, 1117, 1223, 1226  
**DECAY of turbulence (see Turbulence generation and decay)**  
**DEFLAGRATION (see also Combustion, Detonation)**..... 564, 994, 1249, 1389, 1510, 1515, 1522, 1559  
**DEFLECTIONS, dynamic (see Dynamic stresses and deflections)**  
**DEFORMABLE systems, motion of**..... 492, 763, 856, 1083, 1084, 130  
**DESIGN factors, meaning of material tests, general. (see Creep, relaxation tests; Design, philosophy of; Factors of safety, working stresses; Fatigue tests; Hardness; Impact tests; Limit design; Model tests; Static tests)**  
**DESIGN, philosophy of**..... 464, 1470, 1683  
**DETONATIONS (see also Deflagration)**..... 131, 181,  
 183, 184, 342, 381, 564, 1249, 1300, 1381, 1522  
**DETONICS (see Ballistics)**  
**DIABATIC flow**..... 132, 183, 332, 540,  
 685, 747, 891, 899, 925, 1076, 1077, 1248,  
 1249, 1253, 1389, 1510, 1515, 1522, 1667, 1668  
**DIESEL injection (see Water hammer)**  
**DIFFERENTIAL equations**..... 1551  
**DIFFUSERS, compressible flow in**..... 124, 723, 1253  
**DIFFUSERS in pumps, etc.**..... 723, 1379, 1537  
**DIFFUSION**..... 166, 388,  
 482, 560, 567, 744, 909, 1394, 1412, 1632, 1655  
**DIRECTIONAL control of ships**..... 371, 1057  
**DIRIGIBLES**..... 180, 527  
**DISCONTINUITIES in channels**..... 730  
**DISKS, rotating**..... 240, 249, 423, 726, 798, 1107, 1125, 1321  
**DISKS, vibrations of (see Vibrations of plates)**  
**DIVERGENCE, speed of**..... 884, 885, 1269, 1529  
**DOWN-WASH and up-wash**..... 403, 546, 689, 699, 1031, 1675  
**DRAG, aerodynamic, compressible flow**..... 332, 714  
**DRAG, induced**..... 149, 151, 530,  
 531, 677, 680, 695, 697, 698, 714, 866,  
 1001, 1008, 1010, 1016, 1032, 1141, 1397, 1503  
**DRAG of projectiles (see Aerodynamic coefficients of projectiles)**  
**DRAG, parasite**..... 530, 531, 677, 680, 695, 698,  
 714, 866, 1001, 1008, 1010, 1016, 1032,  
 1143, 1256, 1264, 1379, 1390, 1397, 1503, 1527  
**DRAWING (see Rolling, drawing, extruding)**  
**DREDGING**..... 168  
**DROP forging (see Forming processes)**  
**DROP size**..... 554  
**DUCTILITY (see also Strain-hardening)**..... 466, 833  
**DUCTS (see Channels)**  
**DUST, transport of (see Transport of dust, silt, etc.)**  
**DYNAMIC load, buckling under**..... 1618  
**DYNAMIC loads in plane alighting**..... 702, 775, 827, 989, 1083, 1180  
**DYNAMIC stresses and deflections**..... 50, 720, 775, 939, 942  
**DYNAMICAL systems, general theory**..... 765, 1442, 1580  
**DYNAMICS, kinematics, statics, general (see also Accelerometers; Deformable systems; Dynamic loads in plane alighting; Dynamic stresses and deflections; Dynamical systems, general theory; Friction; Kinematics, general; Motion of special systems; Particle motion; Rigid-body motion; Stability theory, general; Statics, general; Vehicle motion and control)**..... 1706

## E

**EARTH pressure**..... 121, 306,  
 850, 852, 853, 1229, 1425, 1426, 1564, 1715



## F

EARTHQUAKES, shocks and vibrations . . . 1427, 1451, 1721  
 EFFECT of crystalline structure on failure . . . 91, 96, 279, 280, 288, 563, 649, 978  
 EFFECT of shape on failure . . . 275, 461, 817, 1204, 1205, 1356, 1358, 1361  
 EFFECT of temperature on failure . . . 91, 98, 281, 287, 461, 640, 645, 649, 828, 833, 1125, 1129, 1356  
 EFFECTIVE width of buckled plates . . . 1089  
 EFFICIENCY and strength of joints . . . 73, 74, 116, 1198  
 ELASTIC foundation or edge support of plates or shells . . . 1114, 1195  
 ELASTIC foundation or end support, beams with . . . 418, 585, 606, 812, 960, 969, 1091, 1106, 1334  
 ELASTIC foundation or end support, buckling of bars with . . . 65, 606, 621, 812, 1614  
 ELASTICITY of joints, effect of . . . 965, 1198  
 ELASTICITY theory, general (see also Anisotropic mediums; Contact stresses and strains; Elasticity theory, three-dimensional; Elasticity theory, two-dimensional; Energy methods; Finite strain; Influence functions; Initial stresses; Nonhomogeneous mediums; Nonlinear mediums; Relaxation methods; Semi-elastic bodies; Shear lag; Stress-concentration, theoretical; Thermal stresses and strains . . . 1600, 1706  
 ELASTICITY theory, three-dimensional . . . 43, 231, 232, 233, 243, 409, 410, 420, 596, 786, 788, 945, 946, 952, 1169, 1188, 1190, 1229, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1323, 1453, 1595, 1602, 1706  
 ELASTICITY theory, two-dimensional . . . 37, 38, 40, 52, 57, 84, 96, 226, 229, 246, 411, 424, 593, 595, 598, 600, 602, 784, 785, 789, 796, 943, 947, 1102, 1103, 1105, 1110, 1169, 1177, 1195, 1315, 1316, 1318, 1324, 1333, 1452, 1596, 1597, 1599, 1601, 1608, 1621, 1715  
 ELECTRIC strain gages (see Strain gages, electric)  
 ELEMENTS of machines and structures (see Rods, beams, shafts, springs, cables, etc.)  
 EMBRITTLING factors . . . 87, 90, 220, 287, 649, 817, 1204, 1205, 1628  
 ENERGY methods in analysis of beams . . . 57  
 ENERGY methods in analysis of plates, shells . . . 59, 962, 1112, 1114, 1460  
 ENERGY methods in analysis of structures . . . 825, 1334, 1613  
 ENERGY methods in elasticity . . . 39, 255, 427, 594, 1128, 1333  
 ENERGY methods in plasticity . . . 805, 1128  
 ENGINES, nuclear power . . . 1127  
 ENGINES, reciprocating . . . 187, 746, 921, 926, 1410, 1443, 1543, 1546  
 ENGINES, rocket and jet . . . 137, 186, 190, 384, 566, 681, 871, 891, 918, 921, 1002, 1003, 1072, 1274, 1389, 1406, 1408, 1421, 1515, 1532, 1534, 1666  
 EQUATIONS, arithmetical or numerical methods for solving (see also Integration methods) . . . 1705  
 EQUATIONS, functional . . . 1551  
 EQUATIONS, nonlinear . . . 769, 1550, 1662  
 EROSION in soils . . . 853, 902, 1226  
 ERROR-CORRECTION control (see Control mechanisms)  
 ERROR theory . . . 1078, 1081, 1416  
 EXHAUST shocks . . . 187  
 EXPERIMENTAL methods, general (see Methods)  
 EXPERIMENTAL stress analysis, general (see Brittle coatings and brittle models; Loading devices; Models and analogs; Photoelasticity, three-dimensional; Photoelasticity, two-dimensional; Residual stresses; Strain gages, electric; Strain gages, miscellaneous types; Stress concentration, experimental; Telemetering; X rays)  
 EXPLORATION, subsurfaces (see Subsurface exploration, methods of)  
 EXPLOSION effects . . . 381, 563, 564, 745, 774, 916, 995, 1067, 1381, 1384, 1385, 1423, 1698  
 EXPLOSION theory (see Detonations, Deflagration)  
 EXTRUDING (see Rolling, drawing, extruding)

FABRICS (see Fibers)  
 FACTORS of safety, working stresses . . . 291, 822, 981, 1214, 1470  
 FAILURE, mechanics of solid state, general (see Brittle shear; Cohesive failure; Crack propagation; Embrittling factors; Failure theories; Fatigue; Impact; Multiaxial stress; Nuclear bombardment; Residual stresses; Size effect; Strain rate; Stress-corrosion; Temperature; Wear and fretting)  
 FAILURE theories (see also Yielding, laws for onset of) . . . 278, 283, 284, 292, 458, 460, 830, 832, 837, 966, 1123, 1124, 1357, 1359, 1425, 1469, 1699  
 FANS . . . 356, 540, 1275, 1681  
 FATIGUE failure, theories for . . . 284, 464, 651, 829, 830, 1126, 1214, 1221, 1356, 1360  
 FATIGUE properties of specific materials . . . 4, 107, 112, 295, 303, 651, 820, 1220, 1356, 1358, 1360, 1361, 1481, 1637  
 FATIGUE strength of joints . . . 75, 446, 624, 625, 1220, 1336, 1623  
 FATIGUE strength of structures . . . 1623  
 FATIGUE-TEST technique, axial . . . 1133  
 FATIGUE-TEST technique, general . . . 111, 294, 655, 1215, 1216, 1220, 1447, 1637  
 FATIGUE-TEST technique, rotating beam . . . 1321  
 FATIGUE tests, significance of . . . 75, 104, 227, 289, 294, 965  
 FEEDBACK (see Control mechanisms)  
 FIBERS and fabrics, mechanical properties of . . . 298, 1081, 1217, 1369  
 FILM breakdown (see Lubrication, film breakdown)  
 FILTRATION (see Seepage)  
 FINITE deflections of plates or shells . . . 601, 608, 620, 800, 801, 958, 1194, 1324  
 FINITE strain in elasticity theory . . . 599, 601, 945, 1128, 1333, 1706  
 FINS (see Projectiles)  
 FLIGHT path (see also Trajectories, projectile) . . . 514, 695, 1004, 1007, 1017, 1019, 1031, 1154  
 FLIGHT testing techniques . . . 234, 548, 713, 727, 948, 1002, 1031, 1047, 1162, 1164, 1270, 1404, 1687, 1391  
 FLOOD flow (see Streams)  
 FLOW and flight test techniques, general (see also Anemometer, hot-wire; Basins, tow, marine; Flight testing techniques; Low-pressure measurements; Meters, flow; Optical-flow test methods; Pitot tubes; Temperature measurements; Turbulence, experimental; Viscosity measurement; Water-table analogy; Water tunnels; Wind-tunnel balances; Wind-tunnel corrections; Wind-tunnel model control; Wind-tunnel, turbulence; Wind tunnels) . . . 1535, 1692  
 FLOW, general (see Incompressible; Compressible)  
 FLOW in nozzles, pipes, etc. (see Diabatic flow)  
 FLOW meters (see Meters, flow)  
 FLUID properties, physical (see Properties of fluids)  
 FLUTTER, general (see Aeroelasticity)  
 FLUTTER, helicopter rotor . . . 157, 354, 401  
 FLUTTER, methods of studying . . . 25, 27, 156, 159, 160, 212, 234, 717, 884, 886, 1035  
 FLUTTER, wing . . . 158, 161, 309, 343, 353, 393, 522, 532, 537, 717, 718, 719, 767, 881, 884, 887, 888, 1020, 1034, 1035, 1152, 1160, 1178, 1269, 1270, 1530, 1681  
 FLYING boats, problems of, in water . . . 535, 709, 734, 762, 904, 1264  
 FORGING (see Forming processes)  
 FORMING processes . . . 118, 304, 305, 665, 666, 667, 834, 847, 848, 1202, 1222  
 FOUNDATIONS of structures . . . 627  
 FRAMES and bents . . . 74, 82, 271, 949, 1120, 1198, 1206, 1307, 1343, 1465, 1625  
 FRETTING and wear . . . 1293  
 FRICTION . . . 173, 208, 210, 305, 577, 735, 763, 906, 938, 939, 1061, 1080, 1175, 1581  
 FUEL sprays . . . 554  
 FUNCTIONAL equations . . . 1551  
 FUSELAGE, compressible flow . . . 180, 1664  
 FUSES . . . 182

## G

GAS dynamics (see Compressible flow)  
 GENERATION of sound (see Sound generation)  
 GENERATION of turbulence (see Turbulence generations and decay)  
 GEOPHYSICS (see Earthquakes; Plasticity in geology; Subsurface exploration)  
 GLIDERS (see Airplanes and gliders)  
 GLUED joints . . . 966, 982  
 GOVERNORS (see Control mechanisms)  
 GRINDING . . . 1645  
 GROUND effects . . . 1272  
 GUIDED missiles . . . 153, 695, 1158, 1691  
 GUST loads on airplanes, etc. . . 152, 377, 520, 523, 720, 907, 1022, 1512, 1722  
 GUSTS (see Turbulence, atmospheric)  
 GYROSCOPE applications . . . 9  
 GYROSCOPES . . . 211, 581, 1582  
 GYROSCOPES, governors, servomechanisms, general (see Control mechanisms; Gyroscope applications; Gyroscopes; Servomechanisms)

## H

HAMMER, water (see Water hammer)  
 HARDNESS test technique . . . 465, 654  
 HARDNESS tests, significance of . . . 465, 654, 1476  
 HEAT conduction . . . 194, 195, 197, 199, 200, 203, 387, 545, 556, 567, 574, 748, 750, 752, 753, 754, 755, 756, 903, 925, 926, 928, 929, 930, 931, 1026, 1076, 1276, 1414, 1547, 1548, 1562, 1701, 1702, 1705  
 HEAT exchangers . . . 196, 386, 389, 569, 570, 575, 757, 927, 1026  
 HEAT pump and refrigeration . . . 1544  
 HEAT transfer, general (see Boilers; Boundary layer, thermal; Convection, forced absorption; Convection, free; Heat conduction; Heat exchangers; Heat transfer, theoretical; Properties, thermal; Radiation and absorptions)  
 HEAT transfer in flow (see also Diabatic flow) . . . 1238, 1304  
 HEAT transfer, theoretical . . . 1304, 1548  
 HELICOPTER rotor flutter (see Flutter, helicopter rotor)  
 HELICOPTERS, etc. . . 354, 700, 701, 704, 705, 722, 893, 1028, 1043, 1164, 1215, 1396, 1687  
 HIGH-TEMPERATURE alloys, mechanical properties of . . . 117, 471, 845, 1135  
 HIGH-TEMPERATURE material test technique . . . 299  
 HIGH-SPEED low-pressure gas flow measurements . . . 369, 522, 1538  
 HIGHWAY construction . . . 1339, 1346  
 HISTORY and philosophy of science and mechanics . . . 1580, 1707  
 HUNTING (see Control mechanisms; Transients in vibrations)  
 HYDRAULIC jump . . . 730  
 HYDRAULIC measuring instruments . . . 162, 169, 369, 550, 1653  
 HYDRAULICS, general (see also Canals and channels; Capillarity; Cavitation; Critical speeds; Diffusion; Dredging; Hydraulic measuring instruments; Jets, incompressible; Jump, hydraulic, etc.; Models of rivers, harbors, etc.; Pipe resistance; Pipe roughness and bending; Profiles, velocity; Properties of fluids, physical; Shocks in channels; Soil erosion; Streams, natural, flood flow; Surface layer; Surge tanks; Transport of dust, silt, etc.; Valves and gates; Weirs, spillways) . . . 1484, 1485  
 HYDROFOILS (see Airfoils, hydrofoils)  
 HYSTERESIS (see Internal friction)

## I

ICING, aircraft . . . 1064, 1569  
 IMPACT failure of materials, theory of . . . 303, 1093  
 IMPACT, plane alighting . . . 762, 775, 827, 989, 1083, 1180

- IMPACT-TEST** properties of specific materials  
87, 294, 303,  
461, 468, 656, 839, 841, 844, 1356, 1475, 1637
- IMPACT** tests of materials, significance of  
102, 218, 289, 844, 845, 1093
- IMPACT** tests of materials, technique of  
109,  
110, 296, 817, 839, 1132, 1216, 1475, 1635, 1637
- IMPACT** theory, general (see also Impact, plane alighting; Shock damage and prevention; Shocks in induction and exhaust; Shocks in trains and tows; Water hammer; Diesel injection; Wave motion)  
18, 220, 703, 709, 774, 775, 827, 836, 947, 1088, 1091, 1093, 1450, 1475
- INCOMPRESSIBLE** flow, laminar, viscous, general (see also Airfoil, oscillating; Cascades; Channels; Diabatic flow; Drag, induced; Fluid properties; Ground effects; Jets; Laminar viscous flow; Potential flow; Rotors, cylindrical; Seepage, filtration; Unsteady flow; Viscosity; Vortical flow; Wake theory; Wings, incompressible flow)  
1706
- INDUCED** drag (see Drag, induced)
- INDUCTION** shocks  
187
- INELASTIC** loading (see Yielding)
- INFLUENCE** functions in elasticity theory  
783
- INFRASONICS** (see Ultra and infrasonics)
- INJECTION**, Diesel (see Water hammer)
- INITIAL** deformations, effect on buckling  
65, 66, 618
- INITIAL** stresses due to joints  
265, 1198, 1360
- INITIAL** stresses, effect on buckling  
69
- INITIAL** stresses, elasticity theory of  
1606
- INSTRUMENTATION**, principles of  
5, 1081, 1416, 1535
- INTEGRAL** equations  
1551
- INTEGRATION**, graphical (see Integration, methods of)
- INTEGRATION**, methods of  
68, 138, 139, 146,  
206, 261, 313, 356, 390, 576, 602, 813,  
1082, 1125, 1307, 1312, 1317, 1415, 1504, 1551
- INTEGRATION**, numerical (see Integration, methods of)
- INTEGRATION**, series (see Integration, methods of)
- INTERACTION**, aerodynamic (see Ground effects; Wings, attached)
- INTERACTION** shock wave (see Shock waves)
- INTERFACE** waves  
217
- INTERFERENCE** and coupling, aerodynamic  
357, 358, 1012, 1240, 1263, 1268, 1676
- INTERFEROMETRY** (see Optical and visual flow test methods)
- INTERNAL** friction, hysteresis, general  
643, 941, 978, 1447, 1699
- INTERNAL** friction of specific materials  
1219, 1447
- INTERNAL** friction, tests for measuring  
89, 778, 1131, 1219, 1362
- INTERNAL** hysteresis of specific materials  
1219, 1447
- IZOD** (see Impact test...)

## J

- JET-PROPELLED** aircraft  
164, 186, 346, 548, 693, 697, 891, 912,  
991, 1002, 1003, 1004, 1072, 1159, 1240,  
1257, 1261, 1379, 1397, 1399, 1525, 1534, 1666
- JETS**, compressible flow in  
132, 137, 145,  
153, 164, 166, 346, 686, 861, 871, 891,  
912, 1072, 1148, 1151, 1399, 1515, 1522, 1667
- JETS**, incompressible flow in  
166, 861, 972, 1077, 1487, 1488, 1520
- JOINT** elasticity, effect of  
965, 1198
- JOINTS** and joining methods, general (see Brazed and soldered; Cemented joints; Elasticity of joints; Fatigue strength; Initial stresses; Reinforcing bar bonds; Riveted, bolted joints; Shrink fits; Strength and efficiency; Timber connections; Welds)
- JUMP**, hydraulic, etc. (see also Water-table analogy)  
731, 1049

## K

- KINEMATICS**  
391, 578, 937, 1078, 1084, 1175, 1305, 1581

- KINETIC** theory of gases  
1070, 1304, 1376
- KINETICS** (see Dynamics)

## L

- LAMINAR** boundary layer  
992, 1253
- LAMINAR** viscous flow  
122, 318, 321, 361, 457,  
475, 477, 487, 854, 1012, 1076, 1144, 1272,  
1351, 1375, 1376, 1395, 1452, 1496, 1497, 1521
- LANDING** (see Alighting and take-off; Dynamic loads in plane alighting)
- LANDING-GEAR** structure  
775, 827, 972, 1083
- LARGE** deflections of plates or shells (see Finite deflections of plates or shells)
- LARGE-DISPLACEMENT** elasticity theory (see Finite strain in elasticity theory)
- LATERAL** buckling of beams  
605, 1192, 1206
- LIFT** and high-lift devices  
509, 529, 530, 533, 697, 877, 878,  
883, 1005, 1011, 1018, 1025, 1048, 1156,  
1257, 1397, 1503, 1527, 1658, 1672, 1678, 1693
- LIFTING-SURFACE** cascades (see Cascades, lifting surface)
- LIMIT** design of plates, shells (see Yielding of plates, etc.)
- LIMIT** design of rods, beams, etc. (see Yielding of rods, etc.)
- LIMIT** design, philosophy of  
85
- LINEARIZED** theory, compressible flow  
340, 500,  
996, 1065, 1240, 1251, 1261, 1268, 1384,  
1386, 1387, 1390, 1503, 1505, 1508, 1539, 1663
- LINKAGES** (see Kinematics)
- LOAD**, air (see Aeroelastic effects on)
- LOADING** above yield point (see Yielding.)
- LOADING** devices in structural tests and experimental stress analysis  
48, 949, 1098
- LOADS**, dynamic (see Dynamic loads)
- LOADS**, gust (see Gust loads on airplanes)
- LOADS**, maneuvering, airplane  
885, 1014, 1020, 1024,  
1025, 1027, 1257, 1526, 1675, 1678, 1679, 1693
- LOCAL** buckling of sandwich material skin (see Sandwich material, local buckling of)
- LOW-PRESSURE** high-speed gas flow measurements  
369, 522, 1538
- LOW-TEMPERATURE** material test technique  
1634
- LUBRICATION**, bearings, wear, general (see Bearing heat; Bearing performance and capacity; Bearing pressure distribution; Bearings, oilless; Lubrication, boundary; Lubrication, laws; Wear and fretting)
- LUBRICATION**, boundary  
173, 906, 1295, 1438
- LUBRICATION**, laws governing  
172, 174, 175, 373, 374, 556, 735

## M

- MACHINE** elements (see Rods, beams, shafts, springs, cables, etc.)
- MAGNESIUM** alloys (see Aluminum and magnesium)
- MANEUVERING** loads (see Loads, maneuvering, airplane)
- MARINE** engineering problems, general (see Directional control; Flying boats; Propellers; Resistance; Ship propulsion; Ship stability; Ship structures)
- MARINE** propellers (see Propellers, marine)
- MASONRY** (see Concrete and masonry)
- MATERIAL** properties (see Mechanical properties of specific materials; Physical properties, etc. of soils; Properties of)
- MATERIAL** test results (see Mechanical properties of specific materials)
- MATERIAL** test techniques, general (see Acoustic tests; Bending, shear and other; Compression; Corrosion and weathering; Creep and relaxation; Fatigue; Hardness; High temperature; Impact test; Internal friction; Low temperature; Multiaxial stress; Photogrid; Tension; Testing machines and apparatus; Torsion; Wear; X ray)
- MATERIAL** tests, meaning of (see Design factors)
- MATERIALS**, miscellaneous, properties of (see Miscellaneous materials)

- MATRIX** and tensor methods  
452, 1171, 1308, 1551, 1552, 1706
- MEASUREMENT** methods, general (see also under appropriate modifier)  
770, 1080, 1081, 1155, 1169, 1174, 1219
- MECHANICAL** properties of specific materials (see Aluminum and magnesium alloys; Bending, shear and other static tests; Cast iron; Ceramic; Compression; Concrete and masonry; Corrosion, effect of, on strength; Creep; Fatigue; Fibers and fabrics; High, temperature alloys; Impact test; Internal friction; Miscellaneous materials; Nonferrous metals; Notch sensitivity; Plastics and rubber; Single crystals; Steel; Temperature effects; Tension; Torsion test; Welds; Wood)
- MECHANICS** of forming and cutting (see Cutting; Forming; Grinding; Rolling, drawing, extruding; Tools, strength of)
- MEDIUMS** (see Anisotropic; Nonhomogeneous; Nonlinear mediums)
- MEMBRANES**, membrane theory of shells  
12, 62, 81, 609, 653, 1194, 1324, 1458, 1611
- METALS** (see Aluminum and magnesium; Cast iron; High-temperature alloys; Nonferrous metals; Steel)
- METEOROLOGICAL** dynamics  
177, 380, 706, 736,  
907, 1026, 1063, 1092, 1573, 1574, 1576, 1723
- METEOROLOGY** (see Atmosphere, properties of; Atmosphere, upper; Gust loads; Iceing, aircraft; Meteorological dynamics; Transport of dust; Turbulence, atmospheric; Wind velocities)
- METERS**, flow  
164, 550, 1236, 1533, 1541, 1694
- METHODS**, theoretical and experimental, (see Analogies; Computing machines; Error theory; Equations; Equations, nonlinear; History and philosophy; Influence functions; Instrumentation; Integration; Matrix and tensor methods; Measurement methods; Relaxation; Stability theory; Statistical data analysis; Successive approximation; Tables)
- MISCELLANEOUS** materials, mechanical properties of  
281, 283, 300, 302, 458, 657,  
663, 840, 1130, 1133, 1137, 1225, 1355, 1641
- MISSILES**, guided (see Guided missiles)
- MIXING**, turbulent  
177, 194, 560, 573, 751, 1077
- MODEL** control, wind tunnel  
1693
- MODEL** studies of structures  
83, 271, 1326
- MODEL** tests, significance of in design  
817
- MODELS** and analogs for experimental stress analysis, general  
49, 50, 60, 271, 604, 1099
- MODELS** of rivers, harbors, etc.  
365, 366, 732, 90
- MOTION** of deformable systems (see Deformable systems)
- MOTION** of globe  
1575
- MOTION** of particles (see Particle motion)
- MOTION** of special systems (see also Flight path; Vehicle motion)  
153, 763, 765, 938, 1085, 1175, 1581, 1582
- MULTIAXIAL** stress, effect on failure  
90,  
95, 273, 653, 977, 1202, 1349, 1357, 1467, 1630
- MULTIAXIAL** stresses and strains in plasticity  
282, 430, 642
- MUSICAL** instruments  
777, 1554
- MULTIAXIAL** stress test technique  
90, 95, 100, 664, 1196
- N**
- NATURAL** streams (see Streams)
- NATURALLY** twisted rods  
234
- NOISE**, airplane  
404, 1417, 1558
- NOISE**, general  
1417
- NONELASTIC** loading (see Yielding...)
- NONFERROUS** metals, mechanical properties of (see also Aluminum and magnesium alloys)  
109,  
297, 642, 660, 661, 835, 843, 844, 845, 1480
- NONHOMOGENEOUS** mediums in elasticity theory  
593
- NONHOMOGENEOUS** rods (see Composite rods)
- NONLINEAR** equations  
769, 1550, 1662
- NONLINEAR** mediums in elasticity theory  
36, 419

NONLINEAR vibrations (*see* Vibrations, non-linear)  
 NOTCH sensitivity of specific materials . . . 468, 844  
 NOZZLES (*see* Channels; Jets)  
 NUCLEAR bombardment, effect on failure. . . 1127  
 NUCLEAR power . . . 1127  
 NUMERICAL methods (*see* Equations; Integration methods)

## O

OCEAN currents . . . 1434, 1719  
 OCEANOGRAPHY (*see* Ocean currents; Properties, sea water; Tides, ocean; Transport of dust; Waves, ocean)  
 OILLESS bearings . . . 906  
 OPERATIONAL calculus . . . 1551  
 OPTICAL and visual flow test methods . . . 364, 1163, 1260, 1282, 1403, 1541, 1689  
 OPTICAL stress analysis methods (*see* Photoelasticity)  
 ORIFICES, jets (*see* Jets)  
 OSCILLATING airfoil (*see* Airfoil, oscillating; Unsteady flow)

## P

PANELS, flat or curved . . . 1113, 1459, 1462  
 PARACHUTES and other sinking bodies . . . 518  
 PARTICLE motion . . . 207, 245, 915, 1175  
 PENETRATION, ballistic . . . 1300  
 PERFORMANCE, airplane . . . 150, 346, 516, 548, 561, 701, 702, 705, 706, 1000, 1043, 1095, 1156, 1162, 1254, 1399  
 PERTURBATIONS, compressible flow (*see* Linearized theory)  
 PHASE changes, physical . . . 927, 1297, 1699  
 PHILOSOPHY (*see* Design, philosophy of; History and philosophy of science and mechanics)  
 PHOTOELASTICITY, three-dimensional . . . 602, 1099, 1191, 1320, 1603  
 PHOTOELASTICITY, two-dimensional . . . 74, 121, 241, 242, 364, 602, 657, 791, 1178, 1600, 1604  
 PHOTOGRID technique . . . 470  
 PHYSICAL properties, permeability, capillarity of soils (*see also* Mechanical properties) . . . 120, 121, 853, 1560, 1562, 1716  
 PILES, capacity of, in soil, etc. . . 119, 853, 1138, 1561, 1563, 1718  
 PILING (*see* Piles)  
 PIPE bends, flow in . . . 477, 1373  
 PIPE resistance . . . 122, 322, 370, 1234, 1284, 1373, 1374, 1488, 1494, 1567  
 PIPE roughness, effect on flow . . . 1373, 1374  
 PIPES and vessels under external pressure, buckling of . . . 959, 1617  
 PIPES, internal pressure, stresses in . . . 246, 248, 282, 545  
 PIPES, shocks in induction and exhaust . . . 187  
 PITOT tubes . . . 1162  
 PLASTIC flow, general (*see* Rheology)  
 PLASTIC loading (*see* Yielding . . .)  
 PLASTIC waves (*see* Waves, plastic)  
 PLASTICITY in geology . . . 1229, 1564, 1571  
 PLASTICITY theory . . . 36, 51, 55, 56, 85, 92, 93, 97, 99, 102, 274, 277, 281, 282, 286, 298, 304, 430, 455, 457, 459, 462, 463, 613, 647, 666, 667, 804, 805, 831, 836, 847, 945, 975, 976, 979, 980, 1107, 1121, 1122, 1181, 1203, 1206, 1207, 1208, 1209, 1210, 1211, 1213, 1222, 1315, 1329, 1348, 1349, 1350, 1352, 1353, 1354, 1425, 1450, 1456, 1466, 1468, 1602, 1626, 1629, 1632, 1633, 1647  
 PLASTICS and rubber, mechanical properties of . . . 43, 54, 112, 274, 838, 985, 1134, 1366, 1472, 1474, 1641  
 PLATES, bending of . . . 59, 62, 63, 64, 71, 238, 252, 262, 426, 427, 429, 432, 433, 434, 436, 437, 439, 440, 441, 442, 607, 610, 612, 613, 614, 615, 630, 797, 799, 800, 801, 802, 804, 805, 807, 811, 813, 814, 815, 816, 836, 952, 955, 962, 1109, 1110, 1111, 1196, 1200, 1201, 1305, 1315, 1322, 1323, 1325, 1329, 1330, 1331, 1353, 1585, 1600, 1609, 1610, 1612, 1613

PLATES, buckling of . . . 64, 65, 71, 76, 258, 262, 263, 264, 431, 432, 435, 436, 437, 440, 441, 442, 608, 612, 614, 615, 634, 799, 804, 805, 807, 811, 813, 814, 816, 962, 1108, 1111, 1112, 1113, 1114, 1115, 1196, 1200, 1206, 1329, 1331, 1460, 1463, 1618  
 PLATES, disks, shells, membranes, general (*see* Anisotropic mediums; Bourdon tubes; Concentrated loads; Disks; Elastic foundation or edge support; Energy methods; Finite deflections; Membranes; Panels; Plates; Sandwich materials; Shells; Thick plates or shells; Yielding)  
 PLATES, vibrations of (*see* Vibrations of plates)  
 PLYWOOD (*see* Wood)  
 PORE pressure (*see* Seepage and pore pressure in soils)  
 POTENTIAL flow . . . 123, 135, 168, 309, 310, 312, 315, 316, 320, 322, 474, 476, 478, 512, 524, 699, 860, 861, 877, 943, 1074, 1092, 1141, 1223, 1272, 1377, 1434, 1495, 1590, 1591, 1592, 1594, 1657  
 PRECISION of measurement (*see* Error theory)  
 PRESSED fits . . . 409  
 PRESSURE distribution in incompressible flows . . . 313, 357, 358, 482, 699, 1231, 1234, 1400, 1486, 1499, 1656  
 PRESSURE distribution on wings, etc. . . 325, 343, 344, 350, 506, 513, 517, 526, 531, 546, 559, 677, 688, 689, 691, 693, 695, 697, 699, 711, 718, 878, 887, 1001, 1010, 1013, 1016, 1032, 1231, 1257, 1261, 1386, 1390, 1503, 1676  
 PRESSURE vessels (*see also* Pipes under internal pressure) . . . 971  
 PRESTRESSED concrete . . . 1201, 1340, 1342, 1345, 1473  
 PROFILES, velocity, in pipes, etc. . . 171, 314, 1374, 1393, 1524, 1652  
 PROJECTILE, aerodynamic coefficients (*see* Aerodynamic coefficients of projectiles)  
 PROJECTILES and fuselages in compressible flow . . . 180, 1664  
 PROJECTILES, finless . . . 180, 741, 917  
 PROJECTILES, finned . . . 1065, 1266, 1386  
 PROPAGATION of cracks (*see* Crack propagation)  
 PROPAGATION of waves (*see* Wave propagation)  
 PROPELLER thrust (*see* Thrust, propeller)  
 PROPELLER vibrations (*see* Vibrations of propellers)  
 PROPELLERS, fans, turbines, pumps (*see* Propellers; Fans; etc.; Propulsion of fluids)  
 PROPELLERS, general . . . 372, 401, 555, 721, 889, 890, 942, 1026, 1037, 1043, 1057, 1059, 1060, 1180, 1187, 1281, 1287, 1289, 1292, 1378, 1401, 1558, 1680, 1681, 1682, 1685  
 PROPELLERS, marine . . . 372, 942, 1057, 1059, 1060, 1180, 1287, 1289, 1292, 1680  
 PROPERTIES of fluids, physical . . . 1302, 1566, 1579  
 PROPERTIES of materials, physical (*see* Mechanical properties of specific materials; Physical properties, permeability, capillarity of soils)  
 PROPERTIES of materials, thermodynamic . . . 568, 755, 756, 896, 1066, 1073, 1302, 1546, 1555, 1569, 1723  
 PROPERTIES of metals, thermal . . . 1298, 1549  
 PROPERTIES of sea water . . . 1566  
 PROPERTIES of soils (*see* Physical properties)  
 PROPULSION of fluids, general (*see* Cascades, lift surface; Compressors; Compressors, axial flow; Diffusers; Fans; Propellers; Pumps, vacuum; Rotors, helicopter and autogyro; Sprays, fuel; Turbine, hydraulic; Turbine nozzles; Turbines; Turbines, gas)  
 PROPULSION of ships (*see* Ship propulsion)  
 PUMPS (*see* Compressors; Heat pumps and refrigeration; Pumps, vacuum)  
 PUMPS, vacuum . . . 1535, 1684

## Q

QUAKES (*see* Earthquakes)

## R

RADIATION and absorption . . . 193, 198, 378, 482, 567, 749, 925, 1074, 1075, 1166, 1303, 1411, 1413, 1577  
 RATE of straining, effect on failure (*see* Strain rate, effect on failure)  
 RECIPROCATING engines, vibration (*see* Vibration of reciprocating engines)  
 RECOIL, gun . . . 1675  
 REDUNDANT structures (*see* Statically indeterminate . . .)  
 REFRIGERATION (*see* Heat pump and refrigeration)  
 REGULATION, automatic (*see* Control mechanisms)  
 REINFORCED concrete structures . . . 627, 822, 1118, 1119, 1200, 1622, 1624  
 REINFORCING bar bonds . . . 445  
 RELAXATION methods in elasticity theory . . . 1319, 1363  
 RELAXATION methods for rods, beams, etc. . . 606  
 RELAXATION test (*see* Creep and relaxation test)  
 RELAXATION, theory of (*see also* Creep, theory of) . . . 94, 285, 643, 648, 1213, 1376, 1468, 1473  
 RESIDUAL stress, experimental measurement of . . . 657, 965, 1606  
 RESIDUAL stresses due to yielding . . . 46, 88, 265, 650, 965, 1203, 1343  
 RESIDUAL stresses, effect on failure . . . 1360  
 RESISTANCE, air (*see* Air resistance)  
 RESISTANCE of ships . . . 734, 1056, 1057, 1061, 1062, 1289, 1291, 1292, 1541, 1726  
 RESONANCE . . . 3  
 REVERBERATIONS of sound, etc. . . 1183, 1420, 1553, 1711  
 RHEOLOGY, plastic, viscoplastic flow (*see* Creep, theory of; Ductility; Energy methods; Internal friction, hysteresis; Multiaxial stresses in plasticity; Plasticity in geology; Plasticity theory; Relaxation, theory of; Residual stresses; Strain distribution; Strain-hardening; Viscoelastic; Viscoplastic; Yielding . . .)  
 RIGID-BODY motion (*see also* Gyroscopics) . . . 22, 707, 763, 1175, 1265, 1306, 1307, 1422  
 RINGS and arches, buckling of . . . 255, 256, 617, 1617, 1618  
 RIVETED, bolted joints . . . 73, 266, 443, 444, 448, 604, 624, 818, 1198, 1336, 1465  
 ROCKET projectiles . . . 153, 565, 912, 918, 1421, 1422  
 ROCKETS, space . . . 153  
 RODS, beams, shafts, springs, cables, etc. (*see* Bending; Cables; Center of twist; Combined loading; Composite rods; Curved bars; Elastic foundation or end support; Energy methods; Naturally twisted rods; Pipes under internal pressure; Rods of variable cross section; Springs; Statically indeterminate; Torsion; Transverse shear; Yielding . . .)  
 RODS of variable cross section . . . 428, 646, 1595  
 RODS, vibration of (*see* Vibration of rods)  
 ROLLING, drawing, extruding . . . 847, 1350, 1626, 1647, 1648  
 ROPES (*see* Cables)  
 ROSETTES, strain . . . 1629  
 ROTATING disks (*see* Disks, rotating)  
 ROTATIONAL flow (*see* Vortical flow)  
 ROTOR, helicopter, flutter (*see* Flutter, helicopter rotor)  
 ROTORS, cylinders . . . 1233, 1497  
 ROTORS, helicopter, and autogyro . . . 157, 354, 397, 512, 543, 544, 700, 701, 704, 705, 721, 722, 893, 1043, 1164, 1176, 1215, 1396, 1401, 1687  
 RUBBER (*see* Plastics)  
 RUDDERS, marine . . . 371, 1057

## S

SAMPLING of data . . . 291, 460  
 SANDWICH materials, plates or shells of . . . 799, 1108, 1112, 1115, 1137, 1614  
 SCALE effect, wind-tunnel (*see* Wind-tunnel corrections)



**SCHLIEREN** (see Optical and visual flow test methods) ..... 703, 709, 734, 762, 904, 989, 1180, 1264

**SEAPLANES** and flying boats ..... 1566

**SEA** water properties ..... 307, 308, 472, 473, 670, 851, 853, 858, 1223, 1224, 1227, 1228, 1430, 1560, 1562, 1565, 1652, 1655, 1717

**SEEPAGE** and pore pressure in soils ..... 766, 945

**SEISMOGRAPH** (see Vibration instruments)

**SELF-EXCITED** vibrations (see Vibration, self-excited)

**SEMIELASTIC** bodies ..... 53, 268, 454, 626, 629, 639, 810, 826

**SEMINOCOQUE** structures (see also Sheet-stringer panels) ..... 8, 13, 21, 765, 770, 771, 1052, 1154, 1308, 1441, 1581

**SEPARATION** (see Transition and separation)

**SERVOMECHANISMS** (see also Control mechanisms) ..... 53, 268, 604, 626, 633, 638, 823, 824, 1115

**SETTLEMENT** of soils (see Bearing capacity and settlement of soils)

**SHADOWGRAPH** (see Optical and visual flow test methods)

**SHAFTS** (see Torsion; Center of twist)

**SHEAR** (see Bending, shear; Shear lag; Shear test; Tension field web; Transverse shear)

**SHEAR** lag ..... 53, 268, 604, 626, 633, 638, 823, 824, 1115

**SHEAR** test (see Bending, shear and other static tests)

**SHEAR**, transverse (see Transverse shear in beams)

**SHEET-STRINGER** panels, buckling of ..... 815, 1330, 1459, 1616

**SHELLS**, bending of ..... 60, 63, 66, 250, 251, 253, 254, 422, 424, 425, 427, 438, 449, 450, 613, 623, 626, 639, 649, 803, 804, 806, 808, 809, 810, 816, 823, 951, 953, 954, 956, 957, 1326, 1327, 1328, 1600, 1611, 1616

**SHELLS**, buckling of ..... 66, 67, 253, 258, 438, 439, 613, 620, 623, 804, 806, 808, 809, 816, 951, 1089, 1104, 1206, 1326, 1327, 1328, 1616

**SHELLS**, vibrations of (see Vibrations of plates, shells)

**SHIP** directional control ..... 371, 1057

**SHIP**, fluid resistance of (see Resistance of ships)

**SHIP** hull vibration ..... 584, 768

**SHIP** propulsion ..... 734, 918, 942, 1056, 1057, 1058, 1059, 1060, 1281, 1287, 1289, 1290, 1291, 1292, 1440, 1470, 1654

**SHIP** stability (see Stability of ships)

**SHIP** structures ..... 768, 936, 969, 973, 974, 1199, 1593

**SHOCK** damage and prevention ..... 497, 774, 1089

**SHOCK** load (see Dynamic load)

**SHOCK** waves ..... 130, 131, 133, 140, 142, 145, 147, 170, 330, 331, 333, 334, 335, 338, 352, 490, 496, 497, 501, 511, 682, 697, 742, 872, 874, 992, 1032, 1248, 1249, 1380, 1391, 1423, 1516, 1661, 1664, 1665, 1666

**SHOCKS** in induction and exhaust pipes ..... 187

**SHOCKS** in open channels ..... 730

**SHOCKS** in trains and tows ..... 28, 1586, 1593

**SHRINK** fits ..... 409

**SILT**, transport of (see Transport of dust, silt, etc.)

**SINGLE** crystals, mechanical properties of ..... 91, 1136

**SIZE** effect on failure ..... 86, 87, 101, 275, 276, 1358, 1361, 1469

**SLIP** and free-molecule flow ..... 1511, 1684

**SLOPE-DEFLECTION** method for structures ..... 267, 1344

**SLOPES** in soils, stability of ..... 668, 853, 1425, 1429

**SOIL** erosion ..... 853, 902, 1226

**SOIL** mechanics and seepage, general (see also Bearing capacity and settlement; Bearing capacity of soils under dynamic conditions; Consolidation and stabilization; Earth pressure; Erosion; Physical properties, permeability and capillarity; Piles, capacity of in soil, etc.; Seepage and pore pressure in soils; Slopes in soils, stability of; Soil types; Stress distribution; Subsurface exploration) ..... 1428

**SOIL** pressure (see Earth pressure)

**SOIL** types and classification ..... 168, 853, 1139, 1225

**SOLDERED** and brazed joints ..... 272, 817, 1464

**SONIC** exploration ..... 781, 1095, 1136

**SOUND** absorption ..... 29, 31, 223, 224, 225, 406, 778, 779, 780, 1417, 1556, 1557, 1710, 1713

**SOUND** attenuation ..... 221, 293, 776, 900, 1708

**SOUND**, general (see Acoustics)

**SOUND** generation ..... 33, 216, 407, 1187, 1554, 1558

**SOUND** in crystals ..... 1556

**SOUND** in water, etc. .... 34, 170, 408, 589, 592, 1184, 1185, 1186, 1420

**SOUND-MEASURING** instruments ..... 32, 591, 778, 1136, 1183, 1419, 1556

**SOUND** propagation ..... 30, 33, 35, 404, 405, 587, 588, 590, 592, 782, 944, 1094, 1096, 1182, 1184, 1254, 1556, 1557, 1558, 1708, 1709

**SOUND** transmission through buildings ..... 1710

**SOUND** velocity ..... 1418, 1555, 1556, 1712

**SPECIAL** systems, motion of (see Motion of special systems)

**SPILLWAYS**, Weirs ..... 732, 1223

**SPINNING**, airplane ..... 712, 743, 999, 1009, 1157, 1405

**SPRAYS**, drop size, etc. .... 554

**SPRINGS**, leaf, coil, torsion, rubber ..... 20, 54, 58, 213, 1457, 1607

**STABILITY**, aeroelastic effects on (see Aeroelastic effects)

**STABILITY**, airplane, dynamic ..... 150, 154, 155, 161, 695, 713, 743, 878, 880, 1004, 1007, 1017, 1019, 1023, 1154, 1155, 1159, 1160, 1255, 1259, 1262, 1528, 1529, 1674, 1677

**STABILITY**, airplane, lateral ..... 533, 690, 695, 708, 712, 716, 876, 878, 880, 885, 1004, 1005, 1006, 1007, 1015, 1016, 1017, 1019, 1155, 1158, 1255, 1259, 1262, 1267, 1402, 1526, 1673, 1674, 1677, 1679

**STABILITY**, airplane, longitudinal ..... 154, 513, 519, 523, 529, 692, 695, 697, 699, 711, 713, 875, 878, 879, 880, 917, 1004, 1007, 1023, 1024, 1027, 1155, 1158, 1159, 1160, 1258, 1402, 1528, 1664, 1674, 1676, 1693

**STABILITY**, airplane, static ..... 150, 514, 695, 696, 697, 713, 875, 876, 879, 880, 1004, 1007, 1014, 1015, 1019, 1020, 1155, 1267, 1528, 1674

**STABILITY** of fluid flow (see Turbulence generation and decay)

**STABILITY** of projectile motion ..... 743, 1422, 1582, 1691

**STABILITY** of ships ..... 584, 768, 1056, 1288, 1437

**STABILITY** of soil slopes (see Slopes in soils)

**STABILITY** of vibration ..... 3

**STABILITY** theory, buckling (see also Buckling problems) ..... 427, 813, 814, 1197, 1206, 1329, 1333, 1335, 1600

**STABILITY** theory, general ..... 3, 690, 769, 1441, 1583, 1705

**STABILIZATION** of soils ..... 853, 1564

**STATIC** tests, significance of ..... 90, 289, 292, 468, 822, 1129, 1471

**STATIC** tests, techniques and properties obtained in (see Tension; Compression; etc., tests)

**STATICALLY** indeterminate beams or rods ..... 53, 267, 1344

**STATICALLY** indeterminate structures, general ..... 85, 116, 267, 269, 271, 418, 1344, 1465, 1600

**STATICS**, general ..... 936

**STATISTICAL** data, analysis of ..... 291, 460

**STATISTICAL** theory of turbulence (see Turbulence, statistical theory)

**STEEL**, mechanical properties of ..... 87, 106, 292, 303, 461, 466, 467, 641, 642, 651, 657, 660, 819, 844, 981, 1204, 1205, 1212, 1356, 1360, 1365, 1475, 1478, 1628, 1630, 1642, 1649

**STEERING** (see Vehicle motion)

**STIFFENED** sheet (see Sheet-stringer panels)

**STRAIN** distribution problems in plasticity ..... 414, 642, 654, 834, 847, 1629

**STRAIN** gages, electric ..... 74, 235, 238, 239, 412, 415, 416, 980, 1455, 1605

**STRAIN** gages, miscellaneous types (see also Strain gages, electric) ..... 45, 47, 88, 238, 241, 948, 1455, 1648, 1653

**STRAIN-HARDENING** laws ..... 99, 100, 106, 274, 277, 278, 284, 292, 456, 465, 666, 833, 1097, 1203, 1627

## APPLIED MECHANICS REVIEWS

**STRAIN** rate, effect on failure ..... 94, 101, 219, 220, 287, 640, 652, 666, 766, 828, 839, 856, 1451

**STRAINED** bodies, thermodynamics of ..... 1248, 1359

**STREAMS**, natural, flood flow ..... 168, 1224, 1228, 1374

**STRENGTH** and efficiency of joints ..... 73, 74, 116, 1198

**STRESS** analysis, experimental (see Experimental stress analysis)

**STRESS** concentration, experimental ..... 234

**STRESS** concentration, theoretical ..... 227, 230, 598, 784, 788, 1097, 1188, 1189

**STRESS** distribution in soils ..... 641, 651

**STRESS**, dynamic (see Dynamic stresses)

**STRINGS**, vibration of (see Vibration of rods)

**STRUCTURAL** elements (see Rods, beams, shafts, springs, cables, etc.)

**STRUCTURAL** members, buckling of ..... 68, 69, 76, 259, 616, 618, 619, 621, 662, 812, 826, 1197, 1206, 1615, 1619, 169

**STRUCTURAL** models ..... 83, 271, 136

**STRUCTURES**, buckling of complete ..... 623, 810, 1206, 1326, 1614

**STRUCTURES**, general (see Aeronautical; Bridges; Building; Dams; Energy methods; Frames and bents; Highway; Landing gears; Prestressed concrete; Reinforced concrete; Shear lag; Ship structures; Slope deflection; Statically indeterminate; Structural models; Successive approximation methods; Tension-field webs; Trusses; Vibrations)

**STRUCTURES**, ship (see Ship structures)

**STRUCTURES**, vibrations of (see Vibrations of structures)

**STRUT** (see Column...)

**SUBSONIC** flow (see also Compressible flow) ..... 137, 339, 340, 341, 344, 350, 361, 485, 494, 495, 506, 507, 529, 680, 683, 687, 866, 867, 868, 898, 992, 996, 997, 1018, 1044, 1045, 1146, 1150, 1239, 1244, 1249, 1252, 1260, 1272, 1384, 1463, 1503, 1505, 1506, 1507, 1513, 1546, 1662, 1676

**SUBSURFACE** exploration ..... 1293, 1340, 1577, 1721

**SUCCESSIVE** approximation methods ..... 1, 5, 37, 203, 205, 228, 267, 410, 608, 934, 1170, 1172, 1319, 1415, 1624, 1651, 1662

**SUPERSONIC** flow (see also Compressible flow) ..... 122, 133, 134, 135, 138, 139, 141, 142, 143, 144, 146, 151, 310, 329, 333, 339, 341, 343, 385, 495, 498, 499, 500, 501, 504, 505, 520, 532, 677, 680, 684, 688, 694, 695, 697, 698, 710, 742, 866, 869, 870, 873, 878, 881, 993, 996, 1004, 1008, 1016, 1017, 1032, 1044, 1065, 1147, 1148, 1149, 1150, 1153, 1160, 1239, 1240, 1241, 1242, 1243, 1245, 1246, 1249, 1250, 1251, 1252, 1253, 1257, 1261, 1269, 1273, 1378, 1379, 1382, 1384, 1386, 1387, 1388, 1390, 1502, 1505, 1507, 1508, 1509, 1512, 1514, 1530, 1546, 1661, 1662, 1663, 1664, 1665, 1667, 1681

**SUPERSONIC** flow, airfoil theory (see Airfoil theory, compressible flow)

**SUPERSONIC** flow, method of characteristics (see Characteristics, method of)

**SUPERSONIC** sound (see Ultra and infrasound)

**SURFACE** layer of fluid on solid ..... 1493

**SURFACE** waves in compressible fluid ..... 136, 742

**SURFACE** waves in incompressible fluid (see Waves, surface)

**SURGE** tanks ..... 1049, 1050, 1051, 1052, 1053

**SUSPENSION**, transport (see Transport of dust, silt, etc.)

**SWEEPBACK** wings (see Wings, sweptback)

**SYSTEMS** (see Deformable systems; Dynamical systems)

**TAKE-OFF** (see Alighting and take-off)

**TANKS** and pipes under external pressure ..... 959, 1617

**TANKS** under internal pressure (see also Pipes under internal pressure) ..... 971

**TELEMETERING** ..... 415

- TEMPERATURE effects on properties of specific materials.....299, 302, 466, 467, 471, 656, 819, 843, 845, 1136, 1367, 1478, 1638, 1641
- TEMPERATURE measurements.....193, 899, 1260, 1542
- TEMPERATURES, high or low, effect on material (see High temperature; Low temperature)
- TENSILE failure (see Cohesive failure; Tension)
- TENSION-FIELD webs.....968, 1114
- TENSION properties of specific materials.....87, 91, 118, 290, 295, 299, 470, 835, 842, 845, 846, 986, 987, 1134, 1137, 1358, 1361, 1372, 1472, 1474, 1637, 1641
- TENSION test technique.....86, 101, 106, 118, 295, 299, 465, 837, 984, 1129, 1133, 1134, 1204, 1205, 1211, 1216, 1362, 1364, 1365, 1471, 1472, 1474, 1475, 1637
- TENSOR methods (see Matrix and tensor methods)
- TERRESTRIAL gravitation.....1377
- TERRESTRIAL motion.....1575
- TESTING machines and apparatus.....107, 294, 295, 939, 982, 983, 1081, 1130, 1133, 1216, 1217
- TESTS of materials, general (see Design factors, meaning of material tests; Material test techniques; Mechanical properties of specific materials)
- THEORETICAL methods, general (see Methods)
- THEORY of elasticity, general (see Elasticity theory, general)
- THEORY of plasticity (see Plasticity theory)
- THERMAL properties of metals (see Properties of metals, thermal)
- THERMAL stresses and strains, elasticity theory.....423, 635, 946, 1315, 1318, 1454, 1598
- THERMODYNAMICS, general (see Chemical reactions; Combustion and deflagration; Cycles; Diabatic flow; Engines; Heat pumps and refrigeration; Kinetic theory of gases; Phase changes; Properties of materials; Thermodynamics laws; Strained bodies; Turbines)
- THERMODYNAMICS laws.....188, 189, 192, 332, 383, 385, 567, 572, 594, 920, 923, 924, 1068, 1071, 1167, 1546, 1696, 1700
- THICK plates or shells.....61, 228, 282, 614, 1323, 1613
- THRUST, propeller.....164, 678, 1037, 1043, 1265
- TIDES, ocean.....402, 558, 737, 739, 908, 1377
- TIMBER (see Wood)
- TIMBER connections.....1615
- TOOLS, strength of.....49
- TORSION of shafts.....12, 40, 41, 226, 229, 247, 409, 410, 416, 417, 420, 638, 824, 1099, 1100, 1104, 1105, 1332, 1444, 1445, 1595
- TORSION test properties of specific materials.....54, 642, 1131, 1637
- TORSION test technique.....417, 642, 643, 939, 984, 1216, 1363, 1637
- TOW basins, marine.....1060, 1062
- TOWS (see Shocks in trains)
- TRACKING of rail vehicles.....935
- TRAINS (see Shocks in trains)
- TRAJECTORIES, projectile.....180, 913, 914, 1691
- TRANSIENTS in vibrations.....576, 1088
- TRANSITION and separation.....125, 328, 524, 525, 677, 678, 882, 883, 1030, 1236, 1279, 1488
- TRANSONIC flow.....148, 335, 336, 337, 339, 353, 491, 508, 549, 683, 685, 747, 992, 994, 996, 997, 1034, 1038, 1145, 1152, 1239, 1244, 1247, 1248, 1269, 1383, 1384, 1397, 1501, 1506, 1546
- TRANSPORT of dust, silt, etc.....167, 740, 902, 909, 1278, 1282, 1297, 1430, 1490, 1567, 1650, 1692
- TRANSVERSE shear deformation, effect on buckling.....431, 615, 634, 813, 814, 963, 1326
- TRANSVERSE shear in beams.....53, 633, 962, 968, 1102, 1103
- TRIAXIAL (see Multiaxial)
- TRUSSES.....267, 270, 396, 452, 621, 631, 1084, 1206, 1624
- TUBES under internal pressure (see Pipes under internal pressure)
- TUNNELS (see Water tunnels; Wind tunnels)
- TURBINE nozzles.....132, 137, 1148, 1149, 1249, 1507
- TURBINES, gas.....115, 117, 163, 186, 191, 299, 312, 358, 423, 471, 541, 542, 545, 664, 726, 845, 891, 892, 919, 921, 922, 1003, 1037, 1040, 1125, 1135, 1161, 1249, 1273, 1274, 1301, 1367, 1400, 1406, 1532, 1534, 1537, 1543, 1546, 1683, 1686
- TURBINES, hydraulic.....162, 555, 1685
- TURBINES, steam.....132, 137, 355, 358, 541, 892, 1302, 1406
- TURBULENCE, atmospheric.....177, 379, 560, 738, 907, 1296, 1433, 1521, 1570, 1720
- TURBULENCE, experimental methods for studying.....128, 320, 323, 363, 481, 484, 489, 551, 676, 990, 1030, 1062, 1392, 1488, 1540
- TURBULENCE, general (see Mixing, turbulent; Transition and separation; Turbulence, atmospheric; Turbulence, experimental methods; Turbulence generation and decay; Turbulence, statistical theory; Turbulence with combustion; Turbulent flow, fully developed; Wake theory, compressible flow; Wind-tunnel turbulence)
- TURBULENCE generation and decay.....125, 128, 155, 323, 324, 325, 327, 328, 479, 480, 485, 560, 674, 676, 677, 863, 869, 991, 1062, 1237, 1373, 1392, 1487, 1488, 1519, 1520, 1523, 1706
- TURBULENCE, statistical theory.....673, 865, 1142, 1521, 1523, 1671
- TURBULENCE, wind-tunnel (see Wind-tunnel turbulence)
- TURBULENCE with combustion.....1522
- TURBULENT flow, fully developed.....326, 575, 679, 865, 991, 1062, 1142
- TURBULENT mixing (see Mixing, turbulent)
- TURNING control of ships (see Directional control of ships)
- TWIST drills, strength of.....49
- TWISTING of shafts (see Torsion of shafts)

## U

- ULTRA and infrasonics.....31, 221, 223, 590, 777, 1136, 1362, 1556
- UNDERWATER sound (see Sound in water)
- UNSTEADY flow, compressible.....156, 1035, 1160, 1512, 1516, 1681
- UNSTEADY flow, incompressible.....311, 1437, 1578
- UPPER atmosphere (see Atmosphere, upper)
- UP-WASH (see Down-wash and up-wash)

## V

- VACUUM pumps.....1535, 1684
- VARIABLE cross section, bars with.....428, 646, 1095
- VEHICLE motion and control (see also Vehicle suspension).....209, 394, 579, 764, 935, 1173
- VEHICLE suspension.....22, 209, 394, 579, 935, 1306, 1586
- VEHICLES, tracking of.....935
- VELOCITY profiles in pipes, etc. (see Profiles, velocity)
- VIBRATION, balancing, general (see Balancing of engines, etc.; Balancing machines; Internal hysteresis; Resonance; Tracking; Transients; Vehicle suspension; Vibration damping; Vibration due to wind; Vibration instruments; Vibration isolation; Vibrations, nonlinear; Vibrations of musical instruments; Vibrations of plates; Vibrations of propellers; Vibrations of reciprocating engines; Vibrations of rods; Vibration of shafts; Vibrations of ship hulls; Vibrations of structures; Vibrations, self-excited; Vibrations, steady; Whirling speeds)
- VIBRATION damping.....3, 4, 8, 13, 18, 19, 79, 211, 213, 214, 394, 400, 661, 940, 1088, 1131, 1338, 1447, 1448, 1586
- VIBRATION due to wind.....17, 1087
- VIBRATION instruments.....6, 235, 396, 778, 1445
- VIBRATION isolation.....24, 215

## W

- WAKE theory, compressible flow.....714
- WAKE theory, incompressible flow.....1675
- WATER hammer, Diesel injection systems, etc.....136, 403, 731, 1049
- WATER-TABEG analogy, compressible flow.....1502
- WATER tunnels.....1059, 1285, 1292, 1680
- WAVE motion, general (see Acoustics; Impact; Shock waves; Wave propagation; Waves in open channels; Waves, interface; Waves, ocean; Waves, plastic; Waves, surface)
- WAVE propagation, general.....130, 131, 136, 178, 217, 218, 219, 402, 563, 587, 916, 943, 947, 976, 1090, 1092, 1179, 1181, 1182, 1185, 1248, 1305, 1310, 1315, 1423, 1437, 1587, 1589, 1721
- WAVES in open channels.....403, 1286, 1491
- WAVES, interface.....217
- WAVES, ocean.....179, 365, 376, 737, 738, 773, 910, 911, 1431, 1437, 1568
- WAVES, plastic.....220, 856, 1310, 1450, 1475, 1589
- WAVES, surface.....179, 402, 403, 586, 737, 773, 911, 916, 1092, 1291, 1451, 1590, 1591, 1592, 1594
- WEAR and fretting.....1165, 1293, 1725
- WEAR test technique.....1126
- WEATHERING (see Corrosion)
- WEIRS, spillways.....732, 1223
- WELDS and weld-affected zones, mechanical properties of.....466, 1220
- WELDS, general.....75, 446, 447, 466, 625, 819, 964, 965, 967, 1116, 1218, 1220, 1336, 1337, 1360, 1464, 1621
- WIND instruments, musical.....777
- WIND pressure on structures.....7, 1194, 1338
- WIND resistance (see Aerodynamics of flight; wind pressure)
- WIND-TUNNEL balances.....1045, 1046
- WIND-TUNNEL corrections.....361, 546, 728, 925, 1045, 1046, 1047, 1262, 1266, 1405, 1539
- WIND-TUNNEL model control.....1693
- WIND-TUNNEL turbulence.....547, 676, 1695

WIND tunnels, general . . . 516, 548, 549, 686,  
727, 888, 898, 925, 1015, 1044, 1045, 1046,  
1047, 1259, 1277, 1402, 1539, 1542, 1690, 1695

WIND velocities . . . 178, 380, 738, 781, 915, 1299, 1572, 1578, 1724

WINGS, compressible flow (*see also* Airfoil) . . . 158, 522, 678, 680, 689, 1663, 1676, 1679

WINGS, incompressible flow (*see also* Airfoil) . . . 691, 1658

WINGS, sweptback . . . 691,  
1258, 1503, 1529, 1675, 1676, 1677, 1678, 1679

Wood, timber and plywood, mechanical properties of . . . 659, 1643

## X

X RAY, tests for crack detection . . . 44, 105, 1218

X RAY, use for strain analysis . . . 44, 236, 237, 414, 603, 650, 793

## Y

YIELDING, buckling in range of . . . 69, 72, 262, 264,  
430, 431, 612, 618, 804, 805, 1119, 1329, 1461

YIELDING, laws for onset of . . . 86, 91, 93,  
101, 264, 275, 276, 277, 279, 280, 644,  
646, 666, 828, 1207, 1208, 1209, 1627, 1631

YIELDING of plates or shells . . . 262, 612, 804, 1329

YIELDING of rods, beams, etc. . . 417, 646, 1456, 1639

## Index to Authors

Vol. 1, 1948

(Numbers used are serial numbers of reviews)

## A

- ABBOTT, F. T., JR.  
The Langley two-dimensional low-turbulence pressure tunnel . . . 547
- ABBOTT, I. H.  
The design of low-turbulence wind tunnels . . . 1695
- ABODY-ANDERLIK, E.  
Investigation of turbulence in parallel, convergent, and divergent channels . . . 676
- ABRAMOVICH, G. N.  
On the mechanics of the propagation of detonation and burning . . . 564
- ACKERET, J.  
Investigations of compression shocks and boundary layers in gases moving at high speed . . . 335
- ADAM, J. L.  
Classification societies and the efficiency of hull structures . . . 974
- ADAMS, C. H.  
Creep, long-time tensile and flexural fatigue properties of melamine phenolic plastics . . . 112
- ADAMS, M. C.  
Damping-in pitch and roll of triangular wings at supersonic speeds . . . 878
- ADCOCK, W. A.  
An automatic simultaneous equation computer and its use in solving secular equations . . . 760
- AGNELLUZZI, L.  
Center of drift (in Italian) . . . 514
- AGOSTINI, L.  
Equation of the laminar boundary layer in a convergent conical channel (in French) . . . 1235
- AIKEN, W. S., JR.  
Charts for the determination of wing torsional stiffness required for specified rolling characteristics or aileron reversal speed . . . 885
- AIMONEN, K.  
Graphical determination of flow rate of water (in Swedish) . . . 1280
- ALBERS, L. U.  
The effects of compressibility on the two-dimensional subsonic wind-tunnel contraction correction . . . 728
- ALBRECHT, A.  
The compound girder as combination of steel girder with reinforced concrete slab (in German) . . . 269
- ALDEN, H. L.  
Second approximation to the laminar boundary-layer flow over a flat plate . . . 1395
- ALEXANDRE, R.  
The use of arc welding for economic building construction (in French) . . . 964
- ALKSNE, A.  
The damping due to roll of triangular, trapezoidal, and related planforms in supersonic flow . . . 1017
- ALLEN, H. J.  
Concrete pavements on the German autobahnen . . . 1230
- ALLEN, H. J.  
The effect of compressibility on the growth of the laminar boundary layer on low-drag wings and bodies . . . 677
- A method for calculating heat transfer in the laminar flow region of bodies . . . 1074
- Wall interference in a two-dimensional-flow wind tunnel, with consideration of the effect of compressibility . . . 1539
- ALLEN, J.  
Model experiments in relation to harbors and waterways . . . 365
- ALLNUTT, R. B.  
Instruments at the David Taylor Model Basin for measuring vibration and shock on ship structures and machinery . . . 1593
- ALPERT, S.  
Analysis of the performance of a jet engine from characteristics of the components. II. Interaction of the components as determined from engine operation . . . 1406
- AMBARTSOUMYAN, S. A.  
On the theory of anisotropic shallow shells (in Russian) . . . 954
- AMBERG, C. R.  
Transverse-strength machine based on chainomatic principle . . . 108
- AMBROSIO, E. E.  
Coefficients of discharge of sharp-edged concentric orifices in commercial 2-in., 3-in., and 4-in. pipes for low Reynolds numbers using flange taps . . . 169
- ANDERSON, H. H.  
Centrifugal pumps—an alternative theory . . . 360
- Efficiency and cavitation of fluid machines . . . 555
- ANDERSON, R. A.  
Calculation of uncoupled modes and frequencies in bending or torsion of nonuniform beams . . . 767
- ANDERSON, R. J.  
Apparent effect of inlet temperature on adiabatic efficiency of centrifugal compressors . . . 1042
- ANDERSON, S. L.  
A method for obtaining stress-strain relations in nonisotropic flexible sheet material under two-dimensional stress . . . 983
- ANDREW, C. E.  
Unusual design problems—second Tacoma Narrows bridge . . . 270
- ANDREWS, A. I.  
Residual stresses in enameled sheet-iron specimens . . . 1606
- ANKENBRUCK, H. O.  
Generalized performance comparison of large conventional tail-boom and tail-less airplanes . . . 702
- ANZIFEROV, M. S.  
Free transverse vibrations of a rod with movably clamped ends . . . 585
- ARCHER, R. S.  
Molybdenum—steels, irons, alloys . . . 1642
- ARM, E. L.  
Application of the sliding-thermocouple method to the determination of temperatures at the interface of a moving bullet and a gun barrel . . . 210

- ARNELL, J. C.  
Surface area measurements of fine powders using modified permeability equations . . . 1560
- ARNOLD, L.  
Low-speed flutter and its physical interpretation . . . 886
- ARNOLD, R. N.  
The tuned and damped gyrostatic vibration absorber . . . 211
- AROOTYUNYAN, N. H.  
Torsion of an elliptical ring sector . . . 420
- ARREDI, F.  
Thermal stresses in arch dams (in Italian) . . . 635
- The stability of adducing-generating systems of hydroelectric plants studied by the Leonhard criterion (in Italian) . . . 1052
- ASCE SUBCOMMITTEE ON SLOPE PROTECTION  
Review of slope protection methods . . . 1226
- ASPLUND, S. O.  
A study of three-dimensional pile groups . . . 1117
- AUNIS, G.  
Comparison of observed and calculated pressures of a gas mixture at elevated temperature and pressure (in French) . . . 1424
- AXILROD, B. M.  
Tensile stress-strain relationships of laminated plastics for small strains . . . 1134
- Tensile and compressive properties of laminated plastics at high and low temperatures . . . 1641
- AYRE, A.  
Approximating ehp; revision of data given in papers of 1927 and 1933 . . . 903

## B

- BAALS, D. D.  
Analysis of heat and compressibility effects in internal flow systems and high-speed tests of a ramjet system . . . 1072
- BABBITT, H. E.  
The free surface around, and interference between, gravity wells . . . 1224
- BAES, L.  
The steel-sheet piling 'Belval P' for cellular construction (in French) . . . 970
- BAGNOLD, R. A.  
Sand movement by waves: some small-scale experiments with sand of very low density . . . 167
- BAGSAR, A. B.  
Development of cleavage fractures in mild steels . . . 1204
- Cleavage fracturing and transition temperatures of mild steels . . . 1205
- BAKSHIYAN, F. A.—*see* Bakshshyan, F. A.
- BAILEY, G. L. J.  
The spreading of a liquid over a rough solid . . . 1493
- BAILEY, N. P.  
Abrupt energy transformation in flowing gases . . . 144



- BAKHSHIYAN, F. A.  
The viscous-plastic flow at the impact of a cylinder on a plate (in Russian)... 836  
Finite deformations of a hollow sphere subjected to internal pressure (in Russian)... 1458  
Elastoplastic spherical loading wave (in Russian)... 1589
- BALLOU, J. W.  
A stress-strain tester for textiles employing a magnetic strain gage... 1217
- BAMMERT, K.  
Flow of liquids through rotating hollow shafts (in German)... 1497
- BANKRU, S. K.  
Relationship between wind velocity and temperature in the free atmosphere... 1572
- BARASHIN, E. A.  
On dynamical systems with a velocity potential (in Russian)... 1442
- BARCUS, P. J.  
Load concentration in corrugated paper... 1132
- BARDUCCI, I.  
Specific mechanical impedance of tubes with small cross sections (in Italian)... 1094
- BARMBY, J. G.  
Effect of critical Mach number and flutter on maximum power loading of ducted fans... 1681
- BARBER, R. M.  
Fluid flow in porous media... 1655
- BARBON, R. A.  
Consolidation of fine-grained oils by drain wells... 120
- BARRY, F. W.  
An improved schlieren apparatus... 1163
- BARTELS, R. C. F.  
An investigation of the exact solutions of the linearized equations for the flow past conical bodies... 1243
- BARTHOFF, S.  
On subsonic compressible flows by a method of correspondence—II. Application of methods to studies of flow with circulation about a circular cylinder... 495
- BARTON, M. V.  
Stability of an oscillating airfoil in supersonic airflow... 1160
- BASSIERE, M.  
A solution of the boundary-layer equations (in French)... 1518
- BAST, S.  
Elastoviscous effect in shellac... 1355
- BATCHELOR, G. K.  
Decay of vorticity in isotropic turbulence... 323  
Kolmogoroff's theory of locally isotropic turbulence... 863  
Decay of isotropic turbulence in the initial period... 1392
- BATDORF, S. B.  
Critical combinations of shear and direct stress for simply supported rectangular flat plates... 437  
Critical stress of thin-walled cylinders in axial compression... 438  
Critical combinations of torsion and direct axial stress for thin-walled cylinders... 439  
Critical shear stress of long plates with transverse curvature... 440  
Critical combinations of shear and longitudinal direct stress for long plates with transverse curvature... 441  
Critical shear stress of curved rectangular panels... 442  
An evaluation of some approximate methods of computing landing stresses in aircraft... 775  
A general small-deflection theory for flat sandwich plates... 799  
Critical stress of thin-walled cylinders in torsion... 809  
A simplified method of elastic-stability analysis for thin cylindrical shells—I. Donnell's equation; II. Modified equilibrium equation... 816  
Critical axial compressive stress of a curved rectangular panel with a central chordwise effect... 1462
- BATE, A. E.  
Mean free path of sound in an auditorium... 30
- BATES, W. R.  
Collection and analysis of wind-tunnel data on the characteristics of isolated tail surfaces with and without end plates... 527  
Preliminary investigation at low speed of down-wash characteristics of small-scale sweptback wings... 529
- BAUD, R. V.  
The theory of ultrasonics and their application to materials testing (in German)... 1556
- BAUDRY, J.  
Conditions of stability of the thermal equilibrium of a journal bearing operating in mixed lubrication region (in French)... 1438
- BAUMGARTEN, P.  
Research on the impregnation of soft limestone (in French)... 658
- BAVER, L. D.  
Soil physics... 1562
- BAYLESS, R. T.  
Fracturing of metals... 1124
- BAYLISS, J. R.  
Lateral earth pressures on flexible retaining walls... 850
- BEATTY, J. R.  
Laboratory testing of rubber torsion springs... 54
- BEAVER, W. W.  
Fatigue strength and related characteristics of aircraft joints. II. Fatigue characteristics of sheet and riveted joints of 0.040-in. 24S-T, 75S-T, and R303-T275 aluminum alloys... 624
- BECKER, J. V.  
Analysis of heat and compressibility effects in internal flow systems and high-speed tests of a ramjet system... 1072
- BEDE, W.  
Analysis of the performance of a jet engine from characteristics of the components. II. Interaction of the components as determined from engine operation... 1406
- BELES, A. A.  
On a buckling problem (in French)... 1335
- BELL, L. G.  
Some model experiments on the effect of blade area on propeller cavitation... 1281
- BELL, R. W.  
High-speed testing in the Southern California Co-operative Wind Tunnel... 898
- BELLIN, A. I.  
Determination of the natural frequencies of the bending vibrations of beams... 23
- BELLMAN, R.  
On the existence and boundedness of solutions of nonlinear partial differential equations of parabolic type... 1705
- BELLUZZI, O.  
Study of structures composed of curved plates (in Italian)... 1613
- BELSLEY, S. E.  
Wind-tunnel procedure for determination of critical stability and control characteristics of airplanes... 1402
- BENNETT, C. V.  
Flight tests of airplane models with a 42 and a 62-deg sweptback wing in the Langley free-flight tunnel... 713  
Low-speed stability and damping-in-roll characteristics of some highly swept wings... 880
- BENNETT, J. A.  
Calibration of x-ray measurement of strain... 793
- BENOIT, A.  
On pressure measurements in a fluid flow with shock waves (in French)... 338
- BENSCOTER, S. U.  
Effect of partial wing-lift in seaplane landing impact... 762  
Matrix development of Multhopp's equations for spanwise air load distribution... 877
- BENSER, W. A.  
An investigation of backflow phenomena in centrifugal compressors... 1533
- BERANEK, L. L.  
Airplane quieting: I.—Measurement of sound levels in flight... 32  
Airplane quieting: II.—Specification of acceptable noise levels... 33  
Sound control in airplanes... 225  
Acoustical properties of homogeneous isotropic rigid tiles and flexible blankets... 1557
- BEREZANZEV, V. G.  
Limit equilibrium of a medium having internal friction and cohesion in a stressed state, symmetrical to the axis (in Russian)... 834
- BERGLUND, D. T.  
Rigidity of gelatin (in Swedish)... 840
- BERGMAN, S.  
Numerical-determination by use of special computational devices of an integral operator in the theory of compressible fluids. I.—Determination of the coefficients of the integral operator by the use of punch-card machines... 146  
Punch-card machine methods applied to the solution of the torsion problem... 226  
On supersonic and partially supersonic flows... 336  
Two-dimensional subsonic flows of a compressible fluid and their singularities... 867
- BERNARDO, E.  
Temperature measurements and combustion efficiency in combustors for gas-turbine engines... 1301
- BERRY, J. M.  
Tensile, fatigue, and creep properties of forged-aluminum alloys at temperatures up to 800 F... 656
- BERRY, L. W.  
Experiments in the Lithgow Propeller Tunnel... 1292
- BESCHKINE  
Theory of torsion bending of prismatic beams—open profile (in French)... 1104
- BESKIN, L.  
Warping and shear lag in closed cylindrical shells... 823
- BETCHOV, R.  
The thermic inertia of hot-wire anemometers and the approximate calculation of their characteristics (in French)... 897  
Influence of the thermal conduction upon the hot-wire anemometers (in French)... 1276
- BETH, R. A.  
Camptograms for beams in compression... 261
- BEUSCHAUEN, W.  
Pressure-distribution measurements at high speed and oblique incidence of flow... 350
- BEYER, R. T.  
Ultrasonic absorption in water in the temperature range of 0 to 80 C... 1553
- BICE, G. W.  
An investigation of the variation in heat absorption in a pulverized-coal-fired water-cooled steam-boiler furnace, I, II, III, IV... 1411
- BICKLEY, W. G.  
Finite difference formulas for the square lattice... 1082
- BIEZENO, C. B.  
Note on the buckling of a vertically submerged tube... 959  
Survey of papers on elasticity published in Holland, 1940-1946... 1600
- BIHOVSKI, M. L.  
Accuracy of mechanisms controlled by ordinary differential equations (in Russian)... 1078
- BILJAARD, P. P.  
On the plastic stability of thin plates and shells... 613  
On the elastic stability of sandwich plates, I—II... 614  
On the restricted applicability of the principle of least work in the plastic domain... 647  
Some contributions to the theory of elastic and plastic stability... 1206  
On the linear patterns of the earth's crust... 1571
- BIKERMANN, J. J.  
The fundamentals of tackiness and adhesion... 966
- BILHARZ, H.  
Calculation of the pressure distribution on bodies of revolution in the subsonic flow of a gas. Part I—Axially symmetrical flow... 506
- BINDER, R. C.  
An introduction to an analysis of gas vibrations in engine manifolds... 28  
Calculation of diffuser efficiency for two-dimensional flow... 124
- BINKHORST, I.  
Experimental investigation of the post-buckling behavior of stiffened flat rectangular plates under combined shear and compression. Part I... 1196
- BINNIE, A. M.  
Stresses in streamline shells due to unsymmetrical loading... 250  
A study by a double-refraction method of the development of turbulence in a long circular tube... 489
- BIOT, M. A.  
Low-speed flutter and its physical interpretation... 886

- BIRCH, F.  
Finite elastic strain of cubic crystals. . . . . 599
- BIRKHOFF, G.  
Explosives with lined cavities. . . . . 1300
- BISHOP, A. W.  
Driving and loading tests on six precast concrete piles in gravel. . . . . 1563
- BISHOP, R. H.  
Analysis and preliminary design of an optical instrument for the measurement of drop size and free-water content of clouds. . . . . 1064
- BISSON, E. E.  
Friction at high sliding velocities. . . . . 577  
Friction of solid films on steel at high sliding velocities. . . . . 906
- BITTERLY, J. G.  
Application of the analogy between water flow with a free surface and two-dimensional compressible gas flow. . . . . 1502
- BLAND, R. B.  
An application of statistical data in the development of gust-load criteria. . . . . 1022
- BLAU, R. E.  
A mechanical analyzer for the solution of vibration problems of a single degree of freedom. . . . . 1079
- BLEAKNEY, W.  
The attenuation of spherical shock waves in air. . . . . 1423
- BOAS, W.  
The anisotropy of thermal expansion as a cause of deformation in metals and alloys. . . . . 98  
On the inhomogeneity of plastic deformation in the crystals of an aggregate. . . . . 1211  
An introduction to the physics of metals and alloys. . . . . 1627
- BODEA, E.  
Temperature and entropy in dimensionless units (in German). . . . . 189
- BOEGLI, C. P.  
The hydrodynamic lubrication of finite sliders. . . . . 172
- BOELLTER, L. M. K.  
An investigation of aircraft heaters. XXIX—Comparison of several methods of calculating heat losses from airfoils. . . . . 1701
- BOGART, D.  
Thermodynamic charts for the computation of fuel quantity required for constant-pressure combustion with diluents. . . . . 1410
- BOGDANOFF, J. L.  
A method for simplifying the calculations of the natural frequencies for a system consisting of  $n$  rigid rotating disks mounted on an elastic shaft. . . . . 15
- BOGDANOFF, H. E.  
Comparisons of theoretical and experimental lift and pressure distributions on airfoils in cascade. . . . . 894
- BOGDANOFF, S. M.  
Performance of an axial-flow-compressor rotor designed for a pitch-section lift coefficient of 1.20. . . . . 359  
NACA cascade data for the blade design of high-performance axial-flow compressors. . . . . 724
- BOGUCKI, W.  
Design of steel columns (in Polish). . . . . 961
- BOHANON, H. R.  
Jet diffuser for simulating ram pressure and altitude conditions on a turbojet-engine static test stand. . . . . 1537
- BOLEY, B. A.  
Numerical methods for the calculation of elastic instability. . . . . 68  
Stresses in and general instability of monocoque cylinders with cutouts. VI—Calculation of the buckling load of cylinders with side cutout subjected to pure bending. . . . . 623  
Stresses in and general instability of monocoque cylinders with cutouts. III—Calculation of the buckling load of cylinders with symmetric cutout subjected to pure bending. . . . . 810  
Stresses in and general instability of monocoque cylinders with cutouts. IV—Pure bending tests of cylinders with side cutout. . . . . 951  
The inward bulge-type buckling of monocoque cylinders. IV—Experimental investigation of cylinders subjected to pure bending. . . . . 1326  
The inward bulge-type buckling of monocoque cylinders. V—Revised strain-energy theory which assumes a more general deflected shape at buckling. . . . . 1616
- BOLLINGER, L. M.  
Effect of Reynolds number in the turbulent-flow range on flame speeds of Bunsen-burner flames. . . . . 1522
- BOLT, R. H.  
Normal frequency spacing statistics. . . . . 222  
On the design of perforated facings for acoustic materials. . . . . 224
- BONDI, H.  
Waves on the surface of a compressible liquid. . . . . 136
- BONNEAU, M.  
Equilibrium limit and failure of continuous mediums (in French). . . . . 1425
- BONNEY, E. A.  
Aerodynamic characteristics of rectangular wings at supersonic speeds. . . . . 333
- BOODBERG, A.  
Method of obtaining the stress at mid-thickness by measurements from only one surface of a plate. . . . . 238  
Causes of cleavage fracture in ship plating—tests of wide notched plates. . . . . 1358
- BOOGAYENKO, G. A.  
On the theory of the hydrodynamic grid with thin vanes of arbitrary form (in Russian). . . . . 1498
- BOOTENIN, N. V.  
'Degenerate' dynamic systems considered with the help of the 'jump-hypothesis' (in French). . . . . 938
- BORDONI, P. G.  
Asymmetrical vibrations of cones. . . . . 216
- BORNEAS, M.  
Experiment concerning elastic homogeneity of metals (in French). . . . . 1363
- BORSARI, P.  
Shear lag in a plywood sheet-stringer combination used for the chord member of a box beam. . . . . 633
- BOSIO, M.  
Nickel-beryllium brasses (in Italian). . . . . 1480
- BOSTON, O. W.  
Torsional-stress analysis of twist-drill sections by membrane analogy. . . . . 49
- BOSWELL, I.  
Tensile and compressive properties of laminated plastics at high and low temperatures. . . . . 1641
- BOSWORTH, R. C. L.  
An interpretation of the viscosity of liquids. . . . . 1500
- BOUGHAN, R. B.  
A method of calculating the compressive strength of Z-stiffened panels that develop local instability. . . . . 431
- BOULIGAND, C.  
A typical case of entrainment of a viscous fluid (in French). . . . . 1233
- BOUROT, J. M.  
Chronophotographic observation of gas flows (in French). . . . . 1692
- BOWDEN, K. F.  
Some observations of waves and other fluctuations in a tidal current. . . . . 737
- BOWEN, E. N., JR.  
Introduction to the problem of rocket-powered aircraft performance. . . . . 565  
Theoretical supersonic lift and drag characteristics of symmetrical wedge-shape airfoil sections as affected by sweepback outside the Mach cone. . . . . 1032
- BOWLE, O. L.  
A least-square application to relaxation methods. . . . . 206
- BOYET, H.  
Comparisons of theoretical and experimental lift and pressure distributions on airfoils in cascade. . . . . 894
- BRADDICKS, R., JR.  
A variable-speed rotational viscosimeter. . . . . 165
- BRAHAM, R. R., JR.  
Thunderstorm structure and circulation. . . . . 1720
- BRAND, L.  
Vector and tensor analysis. . . . . 1171
- BRANDENBERGER, H.  
New tests in the field of materials research (in German). . . . . 284  
Numerical calculation of strain-hardening by means of cold-stretching and compressing (in German). . . . . 456
- BRARD, R.  
Waves generated by a pulsating source moving horizontally with a uniform rectilinear motion (in French). . . . . 1437
- BREITENÖDER, M.  
Backwater due to piers as a resistance problem (in German). . . . . 1491
- BREMNER, J. W.  
Calculation of the error due to leakage in the hydraulic-ram method of pressure calibration. . . . . 369
- BRENNECKE  
Maintaining laminar flow in the boundary layer using a sweptback wing. . . . . 680
- BRESSMAN, J. R.  
Method for determining tensile properties of refractory materials at elevated temperatures. . . . . 299
- BREWER, G.  
The equilateral fleximeter. . . . . 1455
- BREWER, J. D.  
Investigation at low speeds of the effect of aspect ratio and sweep on static and yawing stability derivatives of untapered wings. . . . . 1528
- BRICK, R. M.  
Mechanical properties of metals at low temperatures; a survey. . . . . 843
- BRIDGMAN, P. W.  
The effect of hydrostatic pressure on the fracture of brittle substances. . . . . 90  
Large plastic flow and the collapse of hollow cylinders. . . . . 832  
The compression of 39 substances to 100,000 KG/CM<sup>2</sup>. . . . . 1130
- BRIGGS, C. W.  
Recent developments concerning the properties of cast steels. . . . . 467
- BRIGGS, J. Z.  
Molybdenum—steels, irons, alloys. . . . . 1642
- BRIGGS, R. O.  
Analysis and preliminary design of an optical instrument for the measurement of drop size and free-water content of clouds. . . . . 1064
- BRINKLEY, S. R., JR.  
Theory of the propagation of shock waves. . . . . 330  
Theory of the propagation of shock waves from infinite cylinders of explosive. . . . . 331  
Heat transfer between a fluid and a porous solid generating heat. . . . . 389
- BRINKMAN, H. C.  
A calculation of the viscous force exerted by a flowing fluid on a dense swarm of particles. . . . . 902
- BRITTAIN, C. P.  
Attenuation of sound in lined air ducts. . . . . 776
- BROECKHOVEN, J. F. A.  
Contribution to the calculation of arch bridges in reinforced concrete with rigid arch and deck (in Dutch). . . . . 77
- BROWN, C. E.  
Damping in pitch and roll of triangular wings at supersonic speeds. . . . . 878  
NACA investigation of a jet-propulsion system applicable to flight. . . . . 1002
- BROWN, G. W.  
An electronic simultaneous equation solver. . . . . 759
- BROWN, H. H.  
Wing pressure-distribution measurements up to 0.866 Mach number in flight on a jet-propelled airplane. . . . . 693
- BROWN, P. P.  
Lateral earth pressures on flexible retaining walls. . . . . 850
- BROWN, R. A.  
Latest developments in aircraft controls and instrumentation. . . . . 10
- BROWN, R. C.  
The fundamental concepts concerning surface tension and capillarity. . . . . 367
- BROWN, R. L.  
Measurement of acoustic impedances of surfaces in water. . . . . 34
- BROWN, W. B.  
Friction coefficients in a vaneless diffuser. . . . . 723
- BROWN, W. F., JR.  
Strength and failure characteristics of thin circular membranes. . . . . 653  
Comparison of various structural alloy steels by means of the static notch-bar tensile test. . . . . 1365
- BROWN UNIVERSITY, GRAD. DIV. APPL. MATH.  
Summaries of foreign and domestic reports on compressible flow, vols. I, II. . . . . 502  
Summaries of foreign and domestic reports on compressible flow, vol. III. . . . . 503  
Summaries of foreign and domestic reports on compressible flow, vol. IV. . . . . 998
- BROWNE, S. H.  
A wing-body problem in a supersonic conical flow. . . . . 1240

- BRUCKNER, W. H.  
Cleavage fracture of ship plates as influenced by size effect..... 1361
- BRUEGGEMAN, W. C.  
Axial fatigue tests at zero mean stress of 24S-T and 75S-T aluminum-alloy strips with a central circular hole..... 1481
- BRUMMAGE, K. G.  
An electron-diffraction study of the heating of straight-chain organic films and its application to lubrication..... 374
- BRUN, E.  
Mechanical capturing of particles in suspension in the air (in French)..... 1278
- BRUNNER, H.  
Modulus of elasticity and shear modulus of aircraft plywood (in German)..... 1643
- BRUNNER, J.  
Buckling resistance (in German)..... 621
- BRUNOT, A. W.  
Static-load tests on an aircraft gas turbine to simulate loads produced by rapid plane maneuvers..... 50
- BUCHDAHL, R.  
A variable-speed rotational viscosimeter..... 165
- BUCHI, A. J.  
Turbocharging and gas turbines..... 1543
- BUDANSKY, B.  
Notes on the Lagrangian multiplier method in elastic-stability analysis..... 813  
Buckling stresses of clamped rectangular flat plates in shear..... 814  
Compressive buckling of simply supported plates with transverse stiffeners..... 815  
The buckling of a column on equally spaced deflectional and rotational springs..... 960  
Buckling in shear of continuous flat plates..... 962  
Divergence of swept wings..... 1529
- BUELL, E. L.  
On the distribution of plane stress in a semi-infinite plate with partially stiffened edge..... 593
- BULLARD, E. C.  
The determination of the masses necessary to produce a given gravitational field..... 1722
- BERCHER, M. A.  
Compressible flow tables for air..... 1239
- BERGOYNE, J. H.  
The influence of incombustible vapors on the limits of inflammability of gases and vapors in air..... 1409
- BERK, S. M., JR.  
Effect of horizontal tail position on the hinge moments of an unbalanced rudder in attitudes simulating spin conditions..... 1009
- BURKE, J. L.  
Rate of propagation of fatigue cracks in  $1\frac{1}{2} \times \frac{1}{2}$ -in. steel plates with severe geometrical stress-raisers..... 1356
- BURNS, J. R.  
Beryllium in magnesium casting alloys..... 113
- BURRILL, L. C.  
On propeller theory..... 372
- BURTON, C. J.  
A study of ultrasonic velocity and absorption in liquid mixtures..... 1186
- BURWELL, J. T.  
The calculated performance of dynamically loaded sleeve bearings..... 557
- BUSEMANN, A.  
Infinitesimal conical supersonic flow..... 684
- BUSMANN, K.  
Systematic investigations of the influence of the shape of the profile upon the position of the transition point..... 525
- BUTTY, E.  
The simply supported beam of rectangular section and great height (in Spanish)..... 57
- BYERS, H. R.  
Thunderstorm structure and circulation..... 1720
- BYKHOVSKY, M. L.  
On a method of determining velocity and acceleration errors of plane mechanisms..... 578
- CAEN, F.  
Mechanical strength of masonries (in French)..... 469
- CAHILL, J. F.  
Wind-tunnel investigation of effects of forward movements of transition on section characteristics of a low-drag airfoil with a 0.24-chord sealed plain aileron..... 1030
- CAJAN, R.  
Contribution to the calculation of continuous girders with unequal spans (in German)..... 949
- CALDWELL, D. H.  
The free surface around, and interference between gravity wells..... 1224
- CALLAGHAN, E. E.  
Investigation of the penetration of an air jet directed perpendicularly to an air stream..... 1077
- CALLAN, M. M.  
The vertical component of induced velocity in the plane of symmetry of an airplane..... 1031
- CALLEN, H. B.  
The application of Onsager's reciprocal relations to thermoelectric, thermomagnetic, and galvanomagnetic effects..... 1167
- CAMPBELL, J. P.  
The effect of mass distribution on the lateral stability and control characteristics of an airplane as determined by tests of a model in the free-flight tunnel..... 712
- CAMPBELL, W. E.  
Studies in boundary lubrication—III. The wear of carbon brushes in dry atmospheres..... 1295
- CAMPBELL, W. H.  
Bonded-wire strain-gage techniques for polymethyl methacrylate plastics..... 415
- CAMPBELL, W. R.  
Performance tests of wire strain gages—V. Error in indicated bending strains in thin sheet metal due to thickness and rigidity of gage..... 412
- CANGELOSI, J. I.  
Effects of nacelle position on wing-nacelle interference..... 1263
- CAQUOT, M.  
The effect of a normal force, uniformly distributed along a straight line, on a semi-infinite body (in French)..... 1453
- CARAFOLI, E.  
Aerodynamic characteristics of rectangular wings swept back with parabolic axis (in French)..... 528
- CARMAN, P. C.  
Surface area measurements of fine powders using modified permeability equations..... 1560  
Some physical aspects of water flow in porous media..... 1652
- CARPENTER, P. J.  
Effect of wind velocity on performance of helicopter rotors as investigated with the Langley helicopter apparatus..... 1687
- CARRIER, G. F.  
Elbows for accelerated flow..... 122  
The boundary layer in a corner..... 126  
On the buckling of elastic rings..... 256  
On the conformal mapping of airfoils..... 312  
On the nature of the boundary layer near the leading edge of a flat plate..... 857  
The extrusion of plastic sheet through frictionless rollers..... 1626
- CARRIÈRE, P.  
Computation of the velocity field in a supersonic cylindrical nozzle from the photographs of Mach lines, and the correction method for tracing the nozzle (in French)..... 1149
- CARSTENSEN, E. L.  
Propagation of sound through a liquid containing bubbles..... 588
- CÁRSTOU, I.  
Circulation in a viscous incompressible fluid (in French)..... 314  
On the possibility of irrotational movements of an incompressible viscous fluid (in French)..... 315
- CARTER, G. K.  
D-C network-analyzer determination of fluid-flow pattern in a centrifugal impeller..... 202
- CARTER, H. D.  
The loop-scavenge Diesel engine..... 187
- CASAL, P.  
Energy dissipation in a homogeneous turbulence (in French)..... 865  
On a vector field of zero divergence sub-
- CASAL P. (continued)  
ject to a homogeneous probability distribution. Application to homogeneous turbulence (in French)..... 1142
- CASCI, C.  
Theoretical research on stresses in the eye of a connecting rod (in Italian)..... 1193
- CASTLES, W., JR.  
Static thrust analysis for helicopter rotors and airplane propellers..... 1043
- CASTOLDI, L.  
On a property of steady motion of incompressible fluids in which the streamlines form a normal congruency of lines of equal velocity (in Italian)..... 474
- CATTANEO, C.  
Theory of the elastic contact in second approximation (in Italian)..... 787
- CATTIN, A.  
Circular plates on continuous elastic support (in Italian)..... 1609
- CAUDILL, D. C.  
Effect of simulated service conditions on plastics during accelerated and two-year weathering tests..... 838
- CERF, R.  
Motion and deformation of an elastic spherical particle in viscous flow with constant velocity gradient (in French)..... 1282
- CHAIX, B.  
The efficiency of compression by means of stationary shock waves in supersonic gas flow (in French)..... 1253
- CHANG, C. C.  
A simplified method of obtaining drag of a high-speed body from wake surveys..... 714
- CHARNEY, J. G.  
The dynamics of long waves in a baroclinic westerly current..... 1570
- CHARNY, I. A.  
On pressure variations upon sluice gates in a closed conduit with a surge tank in the tail water (in Russian)..... 1280
- CHARRON, F.  
Motion of a viscous fluid between concentric spheres (in French)..... 362  
Viscosity under rapidly changing pressure (in French)..... 373
- CHARTERS, A. C.  
Some ballistic contributions to aerodynamics..... 180
- CHARTET, A.  
General properties of rolling contacts. Similitude theory (in French)..... 763
- CHELLIS, R. D.  
The relationship between pile formulas and load tests..... 1138
- CHEN, P. P.  
Matrix analysis of pin-connected structures..... 452
- CHERRY, T. M.  
Flow of a compressible fluid about a cylinder..... 870
- CHETAYEV, N. G.  
N. E. Joukovsky (in Russian and English)..... 349
- CHEVENARD, P.  
The micromechanic testing of metals (in French)..... 1216
- CHIEN, W. Z.  
Large deflection of a circular clamped plate under uniform pressure..... 958
- CHILDS, E. C.  
Soil geometry and soil-water equilibria..... 1716
- CHILDS, J. H.  
Effect of combustor-inlet conditions on combustion in turbojet engines..... 384
- CHITTY, L.  
On the cantilever composed of a number of parallel beams interconnected by crossbars..... 636
- CHOU, P. Y.  
The turbulent flow along a semi-infinite plate..... 127
- CHOW, C. S.  
The thermal conductivity of some insulating materials at low temperatures..... 1549
- CHRISTENSEN, R. J.  
Reverberation in the sea..... 1420
- CHUDAKOFF, E. A.  
Influence of lateral elasticity of wheels on automobile control..... 579
- CHUKHANOV, Z. F.  
Interior versus exterior problem in heat exchange..... 575
- CICALA, P.  
On the analysis of small deformations in the elastoplastic field (in Italian)..... 430



- CICALA, P. (continued)  
Effects of cutouts in semimonocoque structures..... 629
- CITRINI, D.  
Recent investigations concerning the diffusion of a liquid vein in a static liquid field (in Italian)..... 166  
Rectangular channels with lateral contribution of water flow (in Italian)..... 1483
- CLACK, B. N.  
Spiral cracks in glass tubing..... 458
- CLARION, C.  
Oscillations of a heavy viscous liquid in a U-tube of small diameter—II. Experimental verification (in French)..... 399
- CLARK, D. S.  
Discussion of the forces acting in tension impact tests of materials..... 1475
- CLARKE, M.  
Numerical results for some problems on conduction of heat in slabs with various surface conditions..... 750
- CLAYTON, D.  
Temperature distribution in the bush of a journal bearing..... 1439
- CLEVELAND, F. A.  
Afterburners for turbojet engines..... 1003
- CLOUSING, L. A.  
Wing pressure-distribution measurements up to 0.866 Mach number in flight on a jet-propelled airplane..... 693  
Measurements of the pressure distribution on the horizontal tail surface of a typical propeller-driven pursuit airplane in flight—III. Tail loads in abrupt pull-up push-down maneuvers..... 711
- CODY, P. J.  
Thermodynamic properties—saturated liquid and vapor of ammonia-water mixtures..... 568
- COFFIN, L. F., JR.  
Approximate solutions for symmetrically loaded thick-walled cylinders..... 228  
Partially plastic thick-walled tubes..... 977  
The plastic flow of thick-walled tubes with large strains..... 979
- COHEN, C. B.  
Graphical method of obtaining theoretical lift distributions on thin wings at supersonic speeds..... 1390  
Influence of leading-edge suction on lift-drag ratios of wings at supersonic speeds..... 1503
- COHEN, D.  
The theoretical lift of flat sweptback wings at supersonic speeds..... 697  
A theoretical investigation of the rolling oscillations of an airplane with ailerons free..... 1006
- COHEN, K. S.  
Aerodynamic characteristics of a number of modified NACA four-digit-series airfoil sections..... 1398
- COHEN, P.  
An investigation of the variation in heat absorption in a pulverized-coal-fired water-cooled steam-boiler furnace, I, II, III, IV..... 1411
- COKYUCUL, N. M.  
A mechanical analyzer for the solution of vibration problems of a single degree of freedom..... 1079
- COLBURN, A. P.  
Effect of local boiling and air entrainment on temperatures of liquid-cooled cylinders..... 926
- COLE, J. H.  
Creep rate of various industrial leads..... 297
- COLEMAN, R. E., JR.  
Sliding friction of ball bearings of the pivot type..... 208
- COLEMAN, R. P.  
Theory of ground vibrations of a two-blade helicopter rotor on anisotropic flexible supports..... 543
- COLEMAN, W. S.  
Analysis of the turbulent boundary layer for adverse pressure gradients involving separation..... 328
- COLIN, E. C., JR.  
A numerical solution for the torsion of hollow sections..... 247
- COLLAR, A. R.  
Aeroelastic problems at high speed..... 161  
Semirigid representation of elastic cantilevers for torsion problems in aerodynamics..... 1033
- COLLIER, S. T.  
Bond characteristics of commercial and prepared reinforcing bars..... 116
- COLLINGRIDGE, V. H.  
Driving and loading tests on six precast concrete piles in gravel..... 1563
- COMENETZ, G.  
Continuous heating of a hollow cylinder..... 753
- COMOLET, R.  
Calculation of the boundary-layer thickness in a convergent nozzle of revolution (in French)..... 1393
- CONCORDIA, C.  
D-C network-analyzer determination of fluid-flow pattern in a centrifugal impeller..... 202
- CONNOR, R. W.  
Notes on the Lagrangian multiplier method in elastic-stability analysis..... 813  
Buckling stresses of clamped rectangular flat plates in shear..... 814  
Buckling in shear of continuous flat plates..... 962
- CONNORS, J. F.  
Charts for the determination of supersonic air flow against inclined planes and axially symmetric cones..... 505
- CONTINHO, A. DE S.  
Determination of stresses in concrete with a photoelastic gage (in Portuguese)..... 241
- CONWAY, H. D.  
The bending of symmetrically loaded circular plates of variable thickness..... 802  
The large deflection of simply supported beams..... 1192
- COOK, C. B.  
Collection and analysis of hinge-moment data on control-surface tabs..... 696
- COOPER, H. L.  
Response of damped elastic systems to transient disturbances..... 1088
- COOPER, R. I. B.  
The determination of the masses necessary to produce a given gravitational field..... 1722
- COREY, R. C.  
An investigation of the variation in heat absorption in a pulverized-coal-fired water-cooled steam-boiler furnace, I, II, III, IV..... 1411
- CORLETT, E. C. B.  
Stability losses on flooding..... 936
- CORNELL, D. H.  
Laboratory testing of rubber torsion springs..... 54
- CORNER, J.  
The internal ballistics of a leaking gun..... 183  
The internal ballistics of a gun after shot ejection..... 184  
A theory of the internal ballistics of the 'Hoch-und-Niederdruck Kanone'..... 1714
- CORNET, I.  
Investigation on the validity of an ideal theory of elastoplasticity for wrought-aluminum alloys..... 1210
- COUCH, R. B.  
Notes on turbulence-stimulating devices used for model tests at the David Taylor Model Basin..... 1540
- COURANT, R.  
Supersonic flow and shock waves..... 1661
- COVIAUX, C.  
Application of electronics to the study of soils using the seismic method (in French)..... 1427
- COXE, L. C.  
Lateral earth pressures on flexible retaining walls..... 850
- CRAGGS, J. W.  
Stresses near the end of a long cylindrical shaft under nonuniform pressure loading..... 409
- CRANDALL, S. M.  
Wind-tunnel investigation of unshielded horn balances on a horizontal tail surface..... 523  
Some fundamental similarities between boundary-layer flow at transonic and low speeds..... 992  
Lifting-surface-theory aspect-ratio corrections to the lift and hinge-moment parameters for full-span elevators on horizontal tail surfaces..... 1672
- CRANE, R. M.  
Wind-tunnel investigation of the effects of profile modification and tabs on the characteristics of ailerons on a low-drag foil..... 530
- CRANK, J.  
A practical method for numerical evaluation of solutions of partial differential equations of the heat-conduction type. A diffusion problem in which the amount of diffusing substance is finite. IV. Solutions for small values of the time..... 1412
- CRATE, H.  
Effect of longitudinal stiffeners on the buckling load of long flat plates under shear..... 1114
- CRAWFORD, C. A.  
Nickel-chromium alloys for gas-turbine service..... 115
- CREDE, C. E.  
Damping of textile-mill movement by Frahm system..... 19  
The design of vibration-isolating bases for machinery..... 24  
Theoretical and experimental investigation of buckling shock mount..... 1089
- CREMER, L.  
Improvement of sound insulation of thin walls by diminishing their bending stiffness (in German)..... 1710
- CROCCO, G. A.  
Passing through the sonic barrier..... 1525
- CROCCO, L.  
The double-flow jet-propulsion turbine (in Italian)..... 1532
- CROXVICH, L. L.  
Numerical-graphical methods of characteristics for plane potential shock-free flow problems..... 139
- CROSS, H. C.  
Tensile, fatigue, and creep properties of forged-aluminum alloys at temperatures up to 800 F..... 656
- CROSTHWAITE, C. D.  
The corrected theory of the stiffened suspension bridge..... 78
- CROUSE, W. A.  
Effect of simulated service conditions on plastics during accelerated and two-year weathering tests..... 838
- CROWN, J. C.  
Supersonic nozzle design..... 1148
- CUNNINGHAM, C. W.  
Continuous frame analysis by elastic support action..... 82
- CUNNINGHAM, D. M.  
Fracture of some aluminum alloys under combined stress..... 95
- CURADO, J. G.  
A variable-speed rotational viscosimeter..... 165
- CURRY, C.  
Cathode-ray recording micrometer and force gage..... 1098
- CURTISS, J. H.  
A statistical analysis of some mechanical properties of manila rope..... 1369
- CZITARY, E.  
On the bending stress of cables (in German)..... 245

## D

- DAVIES, D. R.  
Turbulence and diffusion in the lower atmosphere with particular reference to the lateral effect. . . . . 560
- DAVIES, H. E.  
The significance of mechanical testing. . . . . 289
- DAVIES, J. A.  
Marine engines—mechanical reduction gears. . . . . 1058
- DAVIN, M.  
Application of the statics of membranes to the study of dams (in French). . . . . 81
- DAVIS, D. D., JR.  
Investigation of some factors affecting comparisons of wind-tunnel and flight measurements of maximum lift coefficients for a fighter-type airplane. . . . . 1048
- DAVIS, E. A.  
The effect of size and stored energy on the fracture of tubular specimens. . . . . 1469
- DAVIS, F. W.  
Problems of gas-turbine-propeller combinations. . . . . 1037
- DAVIS, G. E.  
Nondestructive measurement of residual and enforced stresses by means of x-ray diffraction. . . . . 44
- DAVIS, H.  
A new method for the aerodynamic design of multistage axial-flow compressors. . . . . 539
- DAVIS, H. E.  
Causes of cleavage fracture in ship plate—tests of wide notched plates. . . . . 1358  
Behavior of steel under biaxial stress as determined by tests on tubes. . . . . 1630
- DAVYDOV, B.  
Quantum mechanics and thermodynamic irreversibility. . . . . 383
- DAWANCE, M. G.  
A new method for the study of relaxation in steel wires (in French). . . . . 1473
- DAWSON, W. J.  
The detection of cracks in steel by means of supersonic waves. . . . . 105
- DEACON, G. E. R.  
Relations between sea waves and microseisms. . . . . 178
- DEAN, W. R.  
A note on the theory of dislocation in metals. . . . . 96  
Notes on waves on the surface of running water. . . . . 403
- DE BEER, E. E.  
Data concerning the resistance in shear deduced from penetration tests (in French). . . . . 1426
- DE BEY, L. G.  
Full-scale free-flight ballistic measurements of guided missiles. . . . . 1691
- DE CARBON, C. B.  
Improvement in the suspension of road vehicles (in French). . . . . 394
- DEPAY, R.  
Thermodynamic method of Th. De Donder and of Schottky, Ulich, and Wagner (in French). . . . . 923  
The stability of azeotropic transformations (in French). . . . . 924
- DE FÉRIET, J. KAMPÉ  
Harmonic analysis of the two-dimensional flow of an incompressible viscous fluid. . . . . 859  
Spectral tensor of the homogeneous nonisotropic turbulence in an incompressible fluid (in French). . . . . 1671
- DE GROOT, S. R.  
Thermodynamical properties of carbon dioxide as function of density and temperature; of pressure and temperature. . . . . 1066  
The Joule-Thomson effect and the specific heat at constant pressure of carbon dioxide. . . . . 1073
- DE HAAN, R. E.  
Wing vibrations in still air (in Dutch). . . . . 884
- DELSASSO, L. A.  
Full-scale free-flight ballistic measurements of guided missiles. . . . . 1691
- DE MARCHI, G.  
Forms of the free surface of permanent streams with progressively increasing or decreasing flow in a constant cross-section (in French). . . . . 368
- DEMON, L.  
Mechanical capturing of particles in suspension in the air (in French). . . . . 1278
- DENNIS, W. L.  
A flowmeter for measuring small liquid flows. . . . . 1688
- DERRON, E.  
Sedimentation of coarse silt (in German). . . . . 1490
- DESCH, C. H.  
The detection of cracks in steel by means of supersonic waves. . . . . 105
- DEVienne, M.  
Influence of humidity on thermal conductivity of granulated materials (in French). . . . . 931
- DE VRIES, J.  
Stresses in glass and their measurement. . . . . 657
- DEWEY, J. M.  
The elastic constants of materials loaded with nonrigid fillers. . . . . 43
- DE WULF, C.  
Determination of residual stresses in some welded structures (in French). . . . . 965
- DI CARLO, R.  
On the damping effect of some copper alloys (in Italian). . . . . 661
- DIEDERICH, F. W.  
Divergence of swept wings. . . . . 1529
- DIENES, G. J.  
An improved low-temperature brittleness test. . . . . 1634
- DIESENDRUCK, L.  
Iterative interference methods in the design of thin cascade blades. . . . . 358
- DIETZ, A. G. H.  
Thin-shelled domes loaded eccentrically. . . . . 60  
Bonded-wire strain-gage techniques for polymethyl methacrylate plastics. . . . . 415
- DIETZ, H.  
The solution of the problem of a six rod-joint system by the method of dual mapping (in German). . . . . 1307
- DIEUDONNE, J.  
Marine propellers—results obtained at sea with cavitating propellers. . . . . 1287
- DINGLE, H.  
Natural philosophy through the eighteenth century and allied topics. . . . . 1707
- DINNIK, A. N.  
On the influence of elastic building-in of the ends on the stability of compressed rods (in Russian). . . . . 812
- DJANG, G. F.  
A kinetic theory of turbulence. . . . . 1523
- DOAN, G. E.  
Effect of welding on ductility and notch sensitivity of some ship steels. . . . . 466
- DOBSON, G. M. B.  
Some meteorological aspects of atmospheric pollution. . . . . 1567
- DODS, J. B., JR.  
Wind-tunnel investigation of drooped ailerons on a 16 per cent thick low-drag airfoil. . . . . 351
- DOLIDZE, D. E.  
Linear boundary problem for the unsteady motion of a viscous incompressible fluid (in Russian). . . . . 311
- DORN, J. E.  
Fracture of some aluminum alloys under combined stress. . . . . 95  
Room temperature tensile properties of aluminum-alloy sheet following brief elevated-temperature exposure. . . . . 118  
The ductility of metals under general conditions of stress and strain. . . . . 833  
Investigation on the validity of an ideal theory of elastoplasticity for wrought-aluminum alloys. . . . . 1210  
Stress rupture and creep tests on aluminum-alloy sheet at elevated temperatures. . . . . 1221  
Fracture strength of 75S-T aluminum alloy under combined stress. . . . . 1357
- DORODNITSIN, A. A.  
Asymptotic solution of Van der Pol's equation (in Russian). . . . . 769
- DOW, N. F.  
Design charts for flat compression panels having longitudinal extruded Y-section stiffeners and comparison with panels having formed Z-section stiffeners. . . . . 432  
Effect of variation in diameter and pitch of rivets on compressive strength of panels with Z-section stiffeners. . . . . 433  
Panels of various lengths with close stiffener spacing. . . . . 434  
Compressive strength of 24S-T aluminum-alloy flat panels with longitudinal formed hat-section stiffeners having a ratio of stiffener thickness to skin thickness equal to 1.00. . . . . 434  
Compressive strength of 24S-T aluminum-alloy flat panels with longitudinal formed hat-section stiffeners having four ratios of stiffener thickness to skin thickness. . . . . 618
- DRAFFIN, J. O.  
The effect of eccentric loading, protective shells, slenderness ratios, and other variables in reinforced concrete columns. . . . . 1119
- DRAMINSKY, P.  
Damping in crankshaft vibrations (in Danish). . . . . 1447
- DRONKERS, J. J.  
Methods for the calculation of tides (in Dutch). . . . . 558
- DRUCKER, D. C.  
Equivalence of photoelastic scattering patterns and membrane contours for torsion. . . . . 1099
- DRUYVESTEYN, M. J.  
Experiments on the effect of low temperature on some plastic properties of metals. . . . . 835
- DRYDEN, H. L.  
Some recent contributions to the study of transition and turbulent boundary layers. . . . . 486  
Recent advances in the mechanics of boundary-layer flow. . . . . 1517  
The design of low-turbulence wind tunnels. . . . . 1695
- DUBERG, J. E.  
Stress analysis by recurrence formula of reinforced circular cylinders under lateral loads. . . . . 449  
Charts for stress analysis of reinforced circular cylinders under lateral loads. . . . . 450
- DUBIN, C.  
Application of 'Hardy Cross' method to interconnected pipes (in French). . . . . 1651
- DUBOIS, P.  
Contribution to the study of hardness (in French). . . . . 1476
- DUCCOFFE, A. L.  
Static thrust analysis for helicopter rotors and airplane propellers. . . . . 1043
- DUMÉZ, A.  
Contribution to the study of hardness (in French). . . . . 1476
- DUNCAN, W. J.  
Assessment of errors in approximate solutions of differential equations. . . . . 1170  
Technique of the step-by-step integration of ordinary differential equations. . . . . 1415
- DUNNE, P. C.  
The general theory of cylindrical and conical tubes under torsion and bending loads. . . . . 626
- DETIRON, R.  
Vibrations of concrete and reinforced concrete (in French). . . . . 1479
- DUWEZ, P. E.  
Discussion of the forces acting in tension impact tests of materials. . . . . 1475
- DUYSTER, H. C.  
Investigation of concrete pile driving (in Dutch). . . . . 1718

## E

- EATHERTON, L. J.  
Effect of centrifugal force on the elastic curve of a vibrating cantilever beam. . . . . 401
- EBERT, L. J.  
Nondestructive measurement of residual and enforced stresses by means of x-ray diffraction. . . . . 44  
Comparison of various structural alloy steels by means of the static notch-bar tensile test. . . . . 1365
- ECKART, C.  
Vortices and streams caused by sound waves. . . . . 408  
The thermodynamics of irreversible processes—IV. The theory of elasticity and anelasticity. . . . . 594  
The theory of the anelastic fluid. . . . . 856
- ECKERT  
The flow through axial turbine stages of large radial blade length. . . . . 355  
The influence of the diameter ratio on the characteristics diagram of the axial compressor. . . . . 1036
- EDELMAN, G. M.  
Method of characteristics for two-dimensional supersonic flow—graphical and numerical procedures. . . . . 138  
Tables for numerical solution of problems in compressible gas flow with energy effects. . . . . 995  
An improved schlieren apparatus. . . . . 1163
- EDELMAN, L. B.  
The pulsating jet engine—its evolution and future prospects. . . . . 190



- EDEN, M.  
A highly sensitive differential manometer 1538
- EDWARDS, T. M.  
External sound levels of aircraft..... 1712
- EGERVARY, E.  
On a generalization of the Lagrangian solution of the problem of three bodies..... 207
- EGGINK, H.  
Compression shocks of detached flow.... 496
- EGGWERTZ, S.  
Theory of elasticity for thin circular cylindrical shells..... 803
- EHRICH, F. R.  
Mechanical principles of the screw extrusion machine..... 665
- EISENBERG, A.  
Improvement of sound insulation of thin walls by diminishing their bending stiffness..... 1710
- EISENMANN, K.  
Symmetrical load on a cylinder by individual radial forces (in German)..... 1597
- EISENSTADT, B. J.  
Boundary-induced up-wash for yawed and sweptback wings in closed circular wind tunnels..... 546
- EISINGER, R. E., JR.  
The correlation of wind-tunnel and flight-test stability and control data for an SB2C-1 airplane..... 727
- EKSTEIN, H.  
Limits of precision in the determination of lattice parameters and stresses by the Debye-Scherrer method..... 603
- ELLIOTT, H. A.  
An analysis of the conditions for rupture due to Griffith cracks..... 278
- ELLIS, G.  
Stress determination by brittle coatings. 46
- ELLIS, M. C., JR.  
NACA investigation of a jet-propulsion system applicable to flight..... 1002
- EMERSON, A.  
Experiments in the Lithgow Propeller Tunnel..... 1292
- EMMEN, J.  
A new method for the calculation of suspension bridges (in Dutch)..... 820
- ENGEL, H. C.  
Column characteristics of sandwich panels having honeycomb cores..... 76
- EPSTEIN, B.  
Statistical aspects of fracture problems. 460
- EPSTEIN, H.  
Lateral earth pressures on flexible retaining walls..... 850
- EPSTEIN, H. T.  
The effects of compressibility on the two-dimensional subsonic wind-tunnel constriction correction..... 728
- EPSTEIN, I.  
The motion of a conical coil spring..... 20
- EPSTEIN, L. F.  
Thermodynamic properties—saturated liquid and vapor of ammonia-water mixtures..... 568
- ERGEN, W. K.  
Bridge-type electrical computers..... 204
- ERICKSON, M. A.  
Allowable stresses for steel members of finite life..... 1214
- ERICSON, H. L.  
Acoustical materials and acoustical treatments for aircraft..... 406
- ERWIN, W. S.  
Ultrasonic resonance applied to non-destructive testing..... 110
- ESCANDE, L.  
Comparison of different methods of calculation applied to the surge tank at Bioge (in French)..... 731
- Graphical method for studying oscillations in a reservoir whose discharge canal receives flows from wells of small cross section (in French)..... 732
- ESLING, R. H.  
Stress-notch sensitivity with eccentric holes..... 468
- ESPEY, G.  
Experimentation on tube drawing with a moving mandrel..... 666
- ESSIG, R. H.  
Jet diffuser for simulating ram pressure and altitude conditions on a turbojet-engine static test stand..... 1537
- ETERMAN, I. I.  
Distribution of pressure over the surface of a body of revolution in a gas flow of high subsonic velocity (in Russian).... 344
- EVANS, C. T., JR.  
Materials for power gas turbines..... 1367
- EVANS, J. M.  
Stability derivatives—determination of  $l_p$  by free oscillations..... 1259
- Stability derivatives—wind-tunnel interference on lateral derivatives  $l_p$ ,  $l_r$ , and  $l_s$  with particular reference to  $l_p$ .... 1262
- EVANS, U. R.  
The mechanism of corrosion fatigue of mild steel..... 651
- EVANS, W. M.  
The propagation of shock waves in steel and lead..... 563
- EVVARD, J. C.  
Distribution of wave drag and lift in the vicinity of wing tips at supersonic speeds..... 688
- Theoretical lift distribution and up-wash velocities for thin wings at supersonic speeds..... 689
- The effects of yawing thin pointed wings at supersonic speeds..... 1016
- Theoretical distribution of lift on thin wings at supersonic speeds (an extension)..... 1261
- Graphical method of obtaining theoretical lift distributions on thin wings at supersonic speeds..... 1390
- A linearized solution for time-dependent velocity potentials near three-dimensional wings at supersonic speeds.... 1512
- EWLES, J.  
Cathode-ray recording micrometer and force gage..... 1098
- EYRING, C. F.  
Reverberation in the sea..... 1420
- ## F
- FABRI, J.  
Boundary layer in supersonic flow (in French)..... 329
- Approximate determination of the corrections due to induced velocities in axial machines with supersonic relative speeds (in French)..... 1378
- FAGE, A.  
Aerodynamic research at the National Physical Laboratory..... 516
- Shock-wave and boundary-layer phenomena near a flat surface..... 1380
- FAINZILBER, A.  
Generalization of the theory of 'mixing lengths' for flow around curved profiles (in Russian)..... 673
- FALDETTA, R. D.  
Effects of temperature distribution and elastic properties of materials on gas-turbine-disk stresses..... 726
- FALKOVICH, S. V.  
Vibrations of a wing of finite span in a supersonic flow (in Russian)..... 353
- A class of Laval nozzles (in Russian).... 685
- On the theory of a wing of finite span in a supersonic flow (in Russian)..... 881
- Plane motion of gas at hypersonic velocity (in Russian)..... 1247
- FARR, D.  
Experimental investigation of the stress distribution around reinforced circular cutouts in skin-stringer panels under axial loads..... 454
- FARRER, E. A.  
Heat transfer to water boiling under pressure..... 927
- FAVRE, H.  
A course in mechanics, vol. II: dynamics of rigid bodies (in French)..... 1175
- FAY, J. A.  
A method of determining the natural frequencies of bending vibrations of uniform beams..... 1446
- FAY, R. D.  
Measurement of acoustic impedances of surfaces in water..... 34
- FEDERHOFER, K.  
The fundamental equations of elastic plates with nonconstant thickness and large deflection (in German)..... 800
- FEFFERMAN, R. L.  
Investigations of 24S-T riveted tension joints..... 73
- FEIL, G. W.  
Comparative tests on extruded 14S-T and extruded 24S-T hat-shape stiffener sections..... 429
- FEINGOLD, A. M.  
Theory of ground vibrations of a two-blade helicopter rotor on anisotropic flexible supports..... 543
- FELDMANN, F.  
Investigations of compression shocks and boundary layers in gases moving at high speed..... 335
- FERET, L.  
Mechanical strength of masonries (in French)..... 469
- FERGUSON, A.  
Natural philosophy through the eighteenth century and allied topics..... 1707
- FERGUSON, J.  
Natural philosophy through the eighteenth century and allied topics..... 1707
- FERRANDON, J.  
The laws of flow in filtration (in French). 858
- FERRARI, C.  
On the theory of cascades of wing profiles (in Italian)..... 988
- Supersonic flow about a sharp-nosed body of revolution..... 1242
- Interference between wing and body at supersonic speeds—theory and numerical application..... 1268
- On the determination of the 'best' profile of blades for axial compressors (in Italian)..... 1271
- FERRERO, M.  
Determination of the parameters of sound propagation in absorbent materials (in Italian)..... 1096
- On the determination of characteristic parameters of an acoustic impedance (in Italian)..... 1709
- FIELD, R. L.  
External sound levels of aircraft..... 1712
- FILA, G. H.  
Investigations of effects of surface temperature and single-roughness elements on boundary-layer transition... 488
- FINCK, J. L.  
Thermodynamics, Part I: The second law from the standpoint of the equation of state..... 920
- Thermodynamics, Part II: Work, heat, and temperature concepts, and an examination of the temperature scale. 1068
- FINK, P. T.  
Stability derivatives—determination of  $l_p$  by free oscillations..... 1259
- FINKELSTEIN, B. N.  
Conditions of formation of plastic deformation in bodies of simplest form abruptly cooled from the surface (in Russian)..... 1598
- FINKELSTEIN, R.  
The normal reflection of shock waves... 497
- FINN, R. S.  
Interference method for obtaining the potential flow past an arbitrary cascade of airfoils..... 357
- FINSTON, M.  
Stability of boundary layers and of flow in entrance section of a channel..... 1524
- FIOCK, E. F.  
The use of thermocouples in high-velocity gas streams..... 1542
- FISCHEL, J.  
Investigation of effect of span, spanwise location, and chordwise location of spoilers on lateral-control characteristics of a tapered wing..... 1005
- Collection of test data for lateral control with full-span flaps..... 1025
- FISCHER, E. K.  
End effect in rotational viscometers.... 895
- FISHBURN, C. C.  
Strength and slip under load of bent-bar anchorages and straight embedments in Haydite concrete..... 445
- FISHER, E. G.  
Lateral vibration and stress in a beam under shock machine loading..... 218
- FISHER, J. C.  
Partially plastic thick-walled tubes.... 977
- The plastic flow of thick-walled tubes with large strains..... 979
- Nucleation..... 1699
- FITZGERALD, R. C.  
A study of the properties of 0.5 per cent chromium—0.5 per cent molybdenum pipe steel..... 1478
- FLANAGAN, M. G.  
An application of lifting-surface theory to the prediction of angle-of-attack hinge-moment parameters for aspect ratio 4.5 wings..... 513
- FLANIGAN, A. E.  
Room temperature tensile properties of aluminum-alloy sheet following brief elevated-temperature exposure..... 118
- Stress rupture and creep tests on aluminum-alloy sheet at elevated temperatures..... 1221



- FLANIGAN, R. E.  
Investigation of the variation of maximum lift for a pitching airplane model and comparison with flight results.... 1693
- FLEAGLE, R. G.  
The fields of temperature, pressure, and three-dimensional motion in selected weather situations.... 1063  
The fields of temperature, pressure, and three-dimensional motion in selected weather situations.... 1436
- FLODY, L. L.  
Propagation of sound through a liquid containing bubbles.... 588
- FLOOR, W. K. G.  
Experimental investigation of the post-buckling behavior of stiffened flat rectangular plates under combined shear and compression. Part I.... 1196
- FLORENTIN, J.  
Remarks on some highly preconsolidated clays (in French).... 1139
- FONDA, L. B.  
High-temperature disk-forging developments for aircraft gas turbines.... 664
- FÖPPL, O.  
Matching of angular speeds of rotating shafts. Theory. (in German).... 1444
- FORRESTER, P. G.  
Frictional properties of oil-seal materials.... 173
- FORSYTHE, G. E.  
Speed of propagation of atmospheric waves with changing shape.... 1431
- FORTIER, O. V.  
Measurement of acoustic impedances of surfaces in water.... 34
- FOSTER, H. W.  
A method of detecting incipient fatigue failure.... 655
- FOULGER, K.  
Stability losses on flooding.... 936
- FOWLER, J. S.  
A study by a double-refraction method of the development of turbulence in a long circular tube.... 489
- FOX, E. N.  
The two-dimensional potential problem of seepage into a cofferdam.... 1227
- FOX, L.  
Some improvements in the use of relaxation methods for the solution of ordinary and partial differential equations.... 1  
Mixed boundary conditions in the relaxation treatment of biharmonic problems (plane strain or stress).... 37
- FRAENKEL, S. J.  
Experimental studies of biaxially stressed mild steel in the plastic range.... 1467
- FRANKL, F.  
On the problems of Chaplygin for mixed sub and supersonic flows.... 683  
Uniqueness of solution of the problem of supersonic flow past a wedge.... 1153  
Influence of the acceleration of slender bodies of rotational symmetry upon the resistance of the gas.... 1508
- FREDERICK, C. L.  
Aircraft instruments for radio-telemetering and television-telemetering.... 234
- FREEDMAN, M. M.  
Diffraction of a plane elastic wave with reference to a semi-infinite rectilinear rigidly fixed slit (in Russian).... 1310
- FREEMAN, J. C.  
Stability of boundary layers and of flow in entrance section of a channel.... 1524  
An analogy between the equatorial easterlies and supersonic gas flows.... 1724
- FREEMAN, J. W.  
An investigation of the high-temperature properties of chromium-base alloys at 1350 F.... 471  
Evaluation of two high-carbon precision-cast alloys at 1700 and 1800 F by the rupture test.... 845
- FREIBERGER, W.  
Plywood panels in end compression: flat panels with grain at various angles to direction of loading.... 263
- FRENTEL, F. N.  
On the kinematics of turbulence.... 480  
On third-order correlation and vorticity in isotropic turbulence.... 864  
Measurement of the turbulent diffusion of the natural wind in the vicinity of the earth's surface (in French).... 1521
- FREYSINET, E.  
Structures of prestressed concrete erected to contain or retain liquids (in French).... 1342
- FRICK, C. W., JR.  
Application of the linearized theory of supersonic flow to the estimation of control-surface characteristics.... 710
- FRIED, B.  
Fatigue of gusseted joints.... 1336
- FRIEDMAN, L.  
A wing-body problem in a supersonic conical flow.... 1240
- FRIEDMANN, J. B.  
Generalized mechanical properties of solid bodies.... 292
- FRIEDRICH, K. O.  
The dock problem.... 1590  
Water waves on a shallow sloping beach.... 1592  
Supersonic flow and shock waves.... 1661
- FRITZ, B.  
Simplified method for the calculation of minimum height of continuous steel girders with variable moments of inertia (in German).... 794
- FROCHT, M. M.  
Photoelasticity.... 602  
Equivalence of photoelastic scattering patterns and membrane contours for torsion.... 1099  
On the removal of time stresses in three-dimensional photoelasticity.... 1320
- FUCHS, N.  
Concerning the velocity of evaporation of small droplets in a gas atmosphere.... 567
- FULLMER, F. F., JR.  
Wind-tunnel investigation of a systematic series of modifications to a flying-boat hull.... 1264
- FURBER, W.  
Testing of insulating materials against sound due to walking (in German).... 778
- G**
- GABRIEL, D. S.  
Jet diffuser for simulating ram pressure and altitude conditions on a turbojet-engine static test stand.... 1537
- GALAVICS, F.  
The discontinuous regulator with auxiliary force and its relation to the continuous regulator (in German).... 392
- GALE, L. J.  
Formulas for additional-mass corrections to the moments of inertia of air-planes.... 707
- GALIN, L. A.  
Notes on the theory of a wing of finite span in a supersonic flow (in Russian).... 532  
A plane rectangular wing in a supersonic flow (in Russian).... 1152  
An estimate for the displacement in spatial contact problems of the theory of elasticity (in Russian).... 1311  
On the pressure of a solid body on a plate (in Russian).... 1322  
Plane elastic-plastic problem. Plastic regions around circular holes in plates and beams.... 1353
- GALLAHER, G. L.  
A method of calculating the compressive strength of Z-stiffened panels that develop local instability.... 431
- GALT, J. K.  
Mechanical properties of NaCl, KBr, KCl.... 1136
- GANTMACHER, F. R.  
Equations of motion of a rocket (in Russian).... 1422
- GARBER, R.  
The mechanism of calcite and nitre twinning under plastic deformation.... 288
- GARDNER, H. S.  
Shell-side coefficients of heat transfer in a baffled heat exchanger.... 569
- GAROFALO, F.  
Precision determination of stress-strain curves in the plastic range.... 106
- GARRICK, I. E.  
Theoretical study of air forces on an oscillating or steady thin wing in a supersonic main stream.... 343  
Flutter and oscillating air-force calculations for an airfoil in a two-dimensional supersonic flow.... 719  
On the plane potential flow past a lattice of arbitrary airfoils.... 860  
On the flow of a compressible fluid by the hodograph method. Parts I and II.... 996
- GATEWOOD, B. E.  
Note on the thermal stresses in a long circular cylinder of  $m+1$  concentric materials.... 1454
- GAZLEY, C., JR.  
Effect of local boiling and air entrainment on temperatures of liquid-cooled cylinders.... 926
- GEHARD, J. C.  
Lateral earth pressures on flexible retaining walls.... 850
- GELBART, A.  
On subsonic compressible flows by a method of correspondence—I. Methods for obtaining subsonic circulatory compressible flows about two-dimensional bodies.... 494  
On subsonic compressible flows by a method of correspondence—II. Application of methods to studies of flow with circulation about a circular cylinder.... 495
- GELEJI, A.  
Calculation of forces encountered in rolling processes and of required work compared with test data (in German).... 305
- GELEJI, S.  
Pressing of L and U-profiles from sheet.... 667
- GELLER, R. F.  
Ceramic bodies for turbojet blades.... 1135
- GENSAMER, M.  
Report on the fracture of metals, Parts I, II.... 276  
The plastic flow of aluminum-alloy sheet under combined loads.... 1202
- GEORGE, N. C.  
Soil geometry and soil-water equilibria.... 1716
- GERARD, G.  
Instability analysis and design of an efficiently tapered plate under compressive loading.... 71  
Critical shear stress of plates above the proportional limit.... 612  
Optimum number of webs required for a multicell box under bending.... 826
- GESSOW, A.  
Flight tests of a helicopter in autorotation, including a comparison with theory.... 700  
Effect of rotor-blade twist and planform taper on helicopter hovering performance.... 701  
Standard symbols for helicopters.... 1028  
Flight investigation of effects of rotor-blade twist on helicopter performance in the high-speed and vertical autorotative descent conditions.... 1396
- GEYER, C. J., JR.  
A theory of commercial yarn testing.... 1471
- GHEORGHIU, V. G.  
A new method of measuring friction coefficients (in French).... 1080
- GHETTI, A.  
Experimental investigations of the stability of governing of hydroelectric groups with pressure drop and surge tank (in Italian).... 1051  
On the stability of oscillations in hydroelectric plants provided with a combined system of conduit and of surge tank (in Italian).... 1053
- GHOSH, N. L.  
A note on the equilibrium of fluid matter in a steady differential rotation.... 1377
- GHOSH, S.  
On the flexure of an isotropic elastic cylinder.... 1312  
On a new function-theoretic method of solving the torsion problem for some boundaries.... 1317
- GILBARG, D.  
On the flow patterns common to certain classes of plane fluid motions.... 310
- GILL, S. S.  
The analysis of a circular ring with propped floor beam.... 825
- GILLES, D. C.  
The use of interlacing nets for the application of relaxation methods to problems involving two dependent variables.... 1319
- GILMAN, J., JR.  
Wind-tunnel tests and analysis of two 10-ft-diam six-blade dual-rotating tractor propellers differing in pitch distribution.... 1682
- GILTAY, J.  
Laminar flow in a slightly curved round tube (in Dutch).... 477
- GINSBURG, A.  
Effects on performance of changing the division of work between increase of

- GINSBURG, A. (continued)  
angular velocity and increase of radius of rotation in an impeller..... 1038
- GIQUEAUX, M.  
On the geometry of the steady-state flow of compressible fluids (in French)..... 873
- GIVENS, M. P.  
Ultrasonic propagation in open air..... 590
- GLOOR, W. E.  
The use of the Rossi-Peakes flow tester in measuring the apparent viscosity of plastics at temperatures from 115 to 175 C..... 1351
- GODDARD, W. B.  
Static-load tests on an aircraft gas turbine to simulate loads produced by rapid plane maneuvers..... 50
- GODFREY, D.  
Friction of solid films on steel at high sliding velocities..... 906
- GODSON, W. L.  
A new tendency equation and its application to the analysis of surface pressure changes..... 1573
- GOETHALS, R.  
Digest of experimental results concerning turbulent boundary layers (in French)..... 862
- GOETT, H. J.  
Wind-tunnel procedure for determination of critical stability and control characteristics of airplanes..... 1402
- GOGATE, D. V.  
The Landau velocity in liquid helium II..... 1555
- GOGUEL, J.  
Distribution of stresses around a cylindrical tunnel (in French)..... 1229
- GOLAND, M.  
The flutter of a uniform wing with tip weights..... 717
- GOLDBERG, E. A.  
An electronic simultaneous equation solver..... 759
- GOLDENWEISER, A. L.  
Approximate calculation of thin shells of zero Gauss curvature (in Russian).... 254  
Membrane theory of shells whose middle surface is a curve of the second order (in Russian)..... 424
- GOLDSTEIN, A. W.  
Isolated and cascade airfoils with prescribed velocity distribution..... 510  
Analysis of the performance of a jet engine from characteristics of the components. II. Interaction of the components as determined from engine operation..... 1406
- GOLDSTEIN, S.  
Low-drag and suction airfoils..... 882  
On laminar boundary-layer flow near a position of separation..... 1670
- GOLDSWORTHY, E. C.  
The development of cycloidal propulsion with particular reference to Voith-Schneider..... 1440
- GOLUBEV, V.  
On the theory of wings of low aspect ratio (in Russian)..... 347
- GONCHAROV, N. R.  
The brittle lacquer method of determining stresses..... 792
- GOOBKIN, S. I.  
Theory of flow stresses in metals at drawing (in Russian)..... 1222
- GOODMAN, A.  
Investigation at low speeds of the effect of aspect ratio and sweep on static and yawing stability derivatives of untapered wings..... 1528
- GOOTMAN, S. G.  
General solution of the plane problem of equilibrium of a beam whose outline consists of logarithmic spirals (in Russian)..... 1102
- GORDON, M.  
Reaction kinetics of adiabatic systems.. 1697
- GORDON, R. B.  
Precipitation-hardened alloys for gas-turbine service. I—Metallurgical considerations. II—Design and application data..... 117
- GÖTHERT, B.  
The calculation of compressible flows with local regions of supersonic velocity. Plane and three-dimensional flow at high subsonic speeds..... 339  
High-speed measurements on a swept-back wing (sweepback angle  $\varphi=35^\circ$  deg)..... 507  
Comparison of drop and wind-tunnel experiments on bomb drag at high subsonic speeds..... 1266
- GOURZHIENKO, G. A.  
The turbulent flow in diffusers of small divergence angle..... 679
- GOUTKIN, V.  
Comparison of different methods of calculation applied to the surge tank at Bioge (in French)..... 731
- GRACEY, W.  
The experimental determination of the moments of inertia of airplanes by a simplified compound-pendulum method..... 1155
- GRAMMEL, R.  
Solution of the problem of the high bursting strength of rotating disks (in German)..... 1107
- GREEN, A. E.  
The flexure and torsion of aeolotropic beams..... 41  
Three-dimensional stress systems in isotropic plates..... 1316
- GREEN, G.  
Solutions of problems relating to media in contact by the method of wave trains..... 572  
Problems involving flexural vibrations treated by the wave-train method... 1587
- GREENBERG, H.  
A theoretical investigation of longitudinal stability of airplanes with free controls including effect of friction in control system..... 1023  
Effect of hinge-moment parameters on elevator stick forces in rapid maneuvers..... 1027
- GREENBERG, H. J.  
On a problem in plane strain..... 789
- GREENBERG, J. M.  
Airfoil in sinusoidal motion in a pulsating stream..... 512  
Some considerations on an airfoil in an oscillating stream..... 537
- GREENFIELD, M.  
The speed of propagation of brittle cracks in steel..... 89  
High-speed compression tests on copper..... 109
- GREENOUGH, G. B.  
Residual lattice strains in plastically deformed metals..... 414
- GREENSPAN, M.  
Perforated cover plates for steel columns: summary of compressive properties... 1200
- GREENSTONE, L.  
Numerical determination by use of special computational devices of an integral operator in the theory of compressible fluids. I. Determination of the coefficients of the integral operator by the use of punch-card machines..... 146
- GREENWOOD, J. N.  
Creep rate of various industrial leads... 297
- GREW, K. E.  
Thermal diffusion in mixtures of the inert gases..... 744
- GRIFFIS, L.  
The permanent strain in a uniform bar due to longitudinal impact..... 220  
The propagation of plasticity in uniaxial compression..... 1450
- GRIFFITHS, J. D.  
Single-span rigid frames in steel..... 1625
- GRINGORTEN, I. I.  
A meteorological measure of maximum gust velocities in clouds..... 907
- GRIVEAUD, J.  
Studies and propositions concerning Vierendeel girders (in French)..... 631
- GROEN, P.  
Two fundamental theorems on gravity waves in inhomogeneous incompressible fluids..... 1092  
Note on the theory of nocturnal radiational cooling of the earth's surface... 1577
- GROSS, B.  
On creep and relaxation..... 94  
On creep and relaxation—II..... 648
- GROSS, G. L.  
Mathematical theory of rocket flight... 912
- GROSSMAN, L. M.  
An investigation of aircraft heaters. XXIX—Comparison of several methods of calculating heat losses from airfoils..... 1701
- GROSSMAN, N.  
Correlated brittle fracture studies of notched bars and simple structures... 287  
The brittle transition temperatures of various low-carbon steels welded by the same method..... 819  
Some new aspects of the fatigue of metals
- GROSSMAN, N. (continued)  
brought out by brittle transition temperature tests..... 1212
- GROSSMANN, K. H.  
Elementary derivation and refinement of Hurwitz's stability criterion (in German)..... 1441  
Flow through blade grills (in German)... 1495
- GROVER, D. W.  
A new capillary viscometer..... 1536
- GROVER, H. J.  
Fatigue strength and related characteristics of aircraft joints. II. Fatigue characteristics of sheet and riveted joints of 0.040-in. 248-T, 758-T, and R303-T275 aluminum alloys..... 624  
Fatigue tests on some spot-welded joints in aluminum-alloy sheet materials... 625
- GUBANOV, A. I.  
Elementary deformations of elastoviscous bodies (in Russian)..... 457  
Vibrations of solid bodies in an elastic viscous medium..... 766  
On the theory of structured liquids (in Russian)..... 1213
- GUDERLEV, G.  
New aspects of transonic flow theory... 148
- GUENTHER, P. E.  
New formulations of the equations for compressible flow..... 146
- GÜNTHER, O.  
The performance of railroad vehicles in curves and its influence on their design, especially on that of steam locomotives (in German)..... 1173
- GUREVICH, G.  
On the law of deformation of amorphous and polycrystalline bodies..... 828
- GUREVICH, M. I.  
On the thin triangular wing at supersonic speed (in Russian)..... 1382  
Flow past an axisymmetrical semibody of finite drag (in Russian)..... 1657
- GURNEY, C.  
The swelling of an orthotropic circular tube..... 42  
Delayed fracture in glass..... 283  
Fatigue of mineral glass under static and cyclic loading..... 841  
The effective stress concentration at the end of a crack in materials having atomic constitution..... 1097
- GUTENBERG, B.  
Microseisms and weather forecasting... 379
- GUTH, E.  
Elastic properties of cork—II. Stress-temperature relationship of compressed cork—III. Hydrostatic and ordinary load-compression curves for cork..... 302
- GUTIN, L.  
On the sound field of a rotating propeller..... 1558
- GUTMAN, S. G.  
General solution of the problem of the theory of elasticity in generalized cylindrical co-ordinates (in Russian)... 231
- GUZMAN, A. M.  
Variational solution of the problem of simply supported deep rectangular beams (in Spanish)..... 1608
- GWATHMEY, A. T.  
Influence of crystal plane and surrounding atmosphere on chemical activities of single crystals of metals..... 1165  
Influence of crystal plane and surrounding atmosphere on some types of friction and wear between metals..... 1725

## H

- HAACK, W.  
Projectile shapes for smallest wave drag. 1095
- HAAG, J.  
On vibrators with stable amplitude (in French)..... 1086
- HABIB, E. T.  
High-speed compression tests on copper. 109
- HADJI-ARGYRIS, J.  
The general theory of cylindrical and conical tubes under torsion and bending loads..... 626
- HAGERMAN, J. R.  
Wind-tunnel investigation of the effect of power and flaps on the static lateral stability and control characteristics of a single-engine high-wing airplane model..... 533  
Down-wash and wake behind untapered wings of various aspect ratios and angles of sweep..... 1675

HAGERITY, W. W. A new factor in the design of hydraulic seals.....	1485	HAVELOCK, T. H. Calculations illustrating the effect of boundary layer on wave resistance....	1291	HICKMAN, W. A. (continued) skin thickness equal to 1.00.....	434
HAHNEMAN, E. Stability of boundary layers and of flow in entrance section of a channel.....	1524	HAWKINS, G. A. Heat transfer by free convection from heated vertical surfaces to liquids....	757	Compressive strength of 24S-T aluminum-alloy flat panels with longitudinal formed hat-section stiffeners having four ratios of stiffener thickness to skin thickness.....	618
HALL, A. H. Curved plates in compression.....	1113	Review of data on dynamic viscosity of water and superheated steam.....	1302	HICKS, B. L. New formulations of the equations for compressible flow.....	143
HALL, A. S. An introduction to an analysis of gas vibrations in engine manifolds.....	28	HAWTHORNE, W. R. The mechanics and thermodynamics of steady one-dimensional gas flow.....	332	Diabatic flow of a compressible fluid....	1668
HALL, C. F. The effect of modifications to the horizontal tail profile on the high-speed longitudinal control of a pursuit airplane....	519	HEASLET, M. A. Compressible potential flow with circulation about a circular cylinder.....	340	HICKS, C. W. Comparison of sound emission from two-blade, four-blade, and seven-blade propellers.....	404
HALL, L. D. Effect of residual tension stress on the fatigue strength of mild steel.....	1360	Volterra's solution of the wave equation as applied to three-dimensional supersonic airfoil problems.....	499	HIESER, G. Investigation of the effects of a nacelle on the aerodynamic characteristics of a swept wing and the effects of sweep on a wing alone.....	1676
HALL, T. A. Heat transfer at low temperatures between tube walls and gases in turbulent flow.....	194	The use of source-sink and doublet distributions extended to the solution of arbitrary boundary-value problems in supersonic flow.....	500	HILL, A. M. Underwater acoustical measuring facilities at the U. S. Navy underwater sound laboratory.....	591
HALSEY, G. Nonlinear viscous elasticity and the Eyring shear model.....	298	HECHTMAN, R. A. Cleavage fracture of ship plates as influenced by size effect.....	1361	HILL, J. G. Scale effect on model propellers.....	1680
A theory of commercial yarn testing....	1471	Riveted semirigid beam-to-column building connections.....	1465	HILL, R. The theory of wedge indentation of ductile materials.....	102
HAMILTON, A. M. Bolted connections in structures.....	818	HEIMERL, G. J. Column and plate compressive strengths of aircraft structural materials: Extruded 0-1HTA magnesium alloy....	662	The theory of combined plastic and elastic deformation with particular reference to a thick tube under internal pressure.....	282
HAMMOND, A. The swelling of an orthotropic circular tube.....	42	Methods of constructing charts for adjusting test results for the compressive strength of plates for differences in material properties.....	811	An investigation, by the method of characteristics, of the lateral expansion of the gases behind a detonating slab of explosives.....	381
HANDELMAN, G. H. On the mechanical behavior of metals in the strain-hardening range.....	99	HEITMAN, R. H. The effect of eccentric loading, protective shells, slenderness ratios, and other variables in reinforced concrete columns.....	1119	A theoretical analysis of the stresses and strains in extrusion and piercing.....	847
Stress-strain relations for incompressible plastic materials with strain hardening.....	274	HÉMAN, H. W. F. C. Calculation of reinforced concrete tubes with circular cross section under internal pressure with consideration of tensile stresses in the concrete (in Dutch).....	246	A theory of the yielding and plastic flow of anisotropic metals.....	1121
Plastic buckling of a rectangular plate under edge thrusts.....	1329	HEMP, W. S. Note on the dynamics of a slightly deformable body.....	1306	A variational principle of maximum plastic work in classical plasticity.....	1354
HANOCQ, C. Investigations into the law of heat dissipation in bearings cooled by natural convection (in French).....	175	On a theory of sandwich construction....	1614	A new theory of the plastic deformation in wire drawing.....	1647
HANSON, F. H., JR. Effect of pressure recovery on the performance of a jet-propelled airplane....	1399	HENCKY, H. On the calculation of plane plates with consideration of shear stresses (in German).....	1323	HINTLOGLOU, J. Design of steel beams under bending load taking into account the deformation reserve due to plastic flow (in German).....	1456
HANSTOCK, R. F. An x-ray method of measuring Poisson's ratio.....	236	HENDRY, A. W. The testing of structural connections....	74	HITCHCOCK, H. P. Loss of spin of projectiles: Part I. Experimental method; Part II. Skin-friction drag.....	741
Damping capacity, strain hardening, and fatigue.....	294	HENSEN, W. The influence of an ice cover over a river on the water movement and the roughness of the bed (in German).....	1374	HOCKMAN, M. T. The correlation of wind-tunnel and flight-test stability and control data for an SB2C-1 airplane.....	727
HANTZSCHE, W. Cones in supersonic flow.....	337	HENSLEIGH, R. H. Some recent developments in hydraulic transmissions.....	1484	HODES, I. A wing-body problem in a supersonic conical flow.....	1240
HAO, C. C. Residual stresses in welded structures....	447	HENSLEY, R. V. Mollier diagrams for air saturated with water vapor at low temperatures....	1569	HOECK, E. Loss of pressure in the water conduit of big hydroelectric power plants (in French).....	1284
HARDTWIG, E. On the theory of Rayleigh waves with given initial conditions (in German)....	1451	HERMANS, J. J. Diffusion with discontinuous boundary....	1070	HOFF, N. J. Stresses in and general instability of monocoque cylinders with cutouts—VI. Calculation of the buckling load of cylinders with side cutout subjected to pure bending.....	623
HARDY, H. C. The properties of felt in the reduction of noise and vibration.....	779	HERRIG, L. J. Performance of an axial-flow-compressor rotor designed for a pitch-section lift coefficient of 1.20.....	359	Stresses in and general instability of monocoque cylinders with cutouts; III. Calculation of the buckling load of cylinders with symmetric cutout—subjected to pure bending.....	810
HARGREAVES, M. E. On the inhomogeneity of plastic deformation in the crystals of an aggregate....	1211	HERMANN, G. Theoretical studies on buckling by the T.K.V.S.B. in 1947 (in German).....	1460	Stresses in and general instability of monocoque cylinders with cutouts. IV—Pure bending tests of cylinders with side cutout.....	951
HARINGX, J. A. Vibration-free mountings with auxiliary mass.....	213	HERWEYER, C. W. Safety coefficient against derailment at high speeds in straight and curved tracks (in Dutch).....	935	The inward bulge-type buckling of monocoque cylinders. IV—Experimental investigation of cylinders subjected to pure bending.....	1326
Conical disk springs.....	1457	HEWLETT, C. W., JR. Sliding friction of ball bearings of the pivot type.....	208	The inward bulge-type buckling of monocoque cylinders. V—Revised strain-energy theory which assumes a more general deflected shape at buckling.....	1616
HARPER, P. W. Investigation of the variation of maximum lift for a pitching airplane model and comparison with flight results....	1693	HEYBEY Analytical treatment of normal condensation shock.....	490	HOGGARD, H. P., JR. Down-wash and wake behind untapered wings of various aspect ratios and angles of sweep.....	1675
HARPER, W. F. Room-temperature tensile properties of aluminum-alloy sheet following brief elevated-temperature exposure.....	118	HEYWOOD, R. B. The relationship between fatigue and stress concentration.....	227	HÖLDER, E. Calculation of the pressure distribution on bodies of revolution in the subsonic flow of a gas. Part I—Axially symmetrical flow.....	506
HARRIS, H., JR. The analysis and design of servo-mechanisms.....	8	HICKMAN, W. A. Design charts for flat compression panels having longitudinal extruded Y-section stiffeners and comparison with panels having formed Z-section stiffeners.....	432	HOLLANDER, A. Laboratory investigations of the mechanism of cavitation.....	1285
HARRIS, N. L. Spiral cracks in glass tubing.....	458	Effect of variation in diameter and pitch of rivets on compressive strength of panels with Z-section stiffeners. Panels of various lengths with close stiffener spacing.....	433	HOLLOMON, J. H. The mechanical equation of state.....	1631
HART, O. W. Measurement of piston-ring radial-pressure distribution.....	950	Compressive strength of 24S-T aluminum-alloy flat panels with longitudinal formed hat-section stiffeners having a ratio of stiffener thickness to		Nucleation.....	1699
HARZA, L. F. The significance of pore pressure in hydraulic structures.....	670				
HASINGER, S. H. Momentum measurement by balancing an impact pendulum.....	164				
HASKIND, M. D. Oscillations of a wing in a subsonic flow (in Russian).....	158				
Vibrations of a wing of finite span in a supersonic flow (in Russian).....	353				
HATK, V. Shrinkage stresses in spot-welded joints....	1621				
HAURWITZ, B. Comments on the sea-breeze circulation....	377				



- HOLMBERG, Å.  
Yield point and ultimate stress of hot-rolled steel rods (in Swedish)..... 846
- HOLMS, A. G.  
Effects of temperature distribution and elastic properties of materials on gas-turbine-disk stresses..... 726  
Effect of strength and ductility on burst characteristics of rotating disks..... 1321
- HOLSTERS, H.  
Calculation of the nonpermanent movement in rivers by the method called 'lines of influence' (in French)..... 1055
- HOLT, M.  
Comparative tests on extruded 14S-T and extruded 24S-T hat-shape stiffener sections..... 429  
Static and fatigue strengths of welded joints in aluminum-manganese-alloy sheet and plates..... 446  
The behaviour of the velocity along a straight characteristic in steady irrotational isentropic flow with axial symmetry..... 1514
- HOLT, W. L.  
Strain tester for rubber..... 1474
- HOLTZCLAW, R. W.  
Wind-tunnel investigation of drooped ailerons on a 16 per cent thick low-drag airfoil..... 351  
Wind-tunnel investigation of the effects of profile modification and tabs on the characteristics of ailerons on a low-drag foil..... 530
- HONEYCOMBE, R. W. K.  
The anisotropy of thermal expansion as a cause of deformation in metals and alloys..... 98
- HOPPMANN, W. H.  
Impact of a mass on a damped elastically supported beam..... 1091
- HORTON, E. A.  
Analysis of the effects of boundary-layer control on the take-off performance characteristics of a liaison-type airplane..... 1156
- HORVAY, G.  
Rotor-blade flapping motion..... 354  
Stability of rotor-blade flapping motion when the hinges are tilted. Generalization of the 'rectangular ripple' method of solution..... 397  
Chordwise and beamwise bending frequencies of hinged rotor blades..... 1176
- HOTTEL, H. C.  
Generalized thermodynamics of high-temperature combustion..... 1407
- HOUBOLT, J. C.  
Calculation of uncoupled modes and frequencies in bending or torsion of non-uniform beams..... 767  
An evaluation of some approximate methods of computing landing stresses in aircraft..... 775
- HOWARTH, R. M.  
Some elementary considerations of the stress-strain curve..... 290
- HOWE, E. D.  
Method of obtaining the stress at the mid-thickness by measurements from only one surface of a plate..... 238
- HOWE, J. W.  
Characteristics of high-velocity jets.... 1487
- HOWELL, A. R.  
The aerodynamics of the gas turbine... 1272
- HRENNIKOFF, A.  
Theory of inelastic bending with reference to limit design..... 55
- HRISTYANOVICH, S. A.  
Subsonic gas flow past a wing profile (in Russian)..... 1146  
Approximate integration of the equations of a supersonic gas flow (in Russian)..... 1383
- Hsu, P. T.  
Buckling of trusses and rigid frames.... 1619
- Hu, P. C.  
The local buckling strength of lipped Z-columns with small lip width..... 435  
A relaxation procedure for the stress analysis of a continuous beam column elastically restrained against deflection and rotation at the supports.... 606  
Notes on the Lagrangian multiplier method in elastic-stability analysis... 813
- HUBBARD, H. H.  
Comparison of sound emission from two-blade, four-blade, and seven-blade propellers..... 404  
Propeller-loudness charts for light airplanes..... 1187  
Effect of critical Mach number and flutter on maximum power loading of ducted fans..... 1681
- HUBER, E. A. F.  
Design of rectangular beams of reinforced concrete under bending stress with consideration of the tension in the concrete (in Dutch)..... 796
- HUBER, P. W.  
A device for measuring sonic velocity and compressor Mach number..... 1419
- HUCKEL, V.  
Tables of hypergeometric functions for use in compressible-flow theory..... 1504
- HUDSON, G.  
The speed of propagation of brittle cracks in steel..... 89
- HUEBSCHER, R. G.  
Friction equivalents for round, square, and rectangular ducts..... 322  
Heat transfer by forced convection along a smooth flat surface..... 571
- HUGHES, R. H.  
An electrical network for the solution of secular equations..... 2
- HUMPHREYS, C. G. R.  
An investigation of the variation in heat absorption in a pulverized-coal-fired water-cooled steam-boiler furnace, I, II, III, IV..... 1411
- HUMPHREYS, M. D.  
The flow and force characteristics of supersonic airfoils at high subsonic speeds..... 1018  
Effects of compressibility on the flow past thick airfoil sections..... 1244
- HUNSAKER, J. P.  
Determination of the thermal correction for a single-shielded thermocouple... 193
- HUSTON, W. B.  
Accuracy of air-speed measurements and flight calibration procedures..... 1162
- HYMANS, F.  
Centrifugal governor in elevator service. 11
- I**
- ILYUSHIN, A. A.  
The elastoplastic stability of plates.... 264  
On the theory of plasticity in case of simple loading of plastic bodies with strain-hardening (in Russian)..... 459  
Stability of plates and shells beyond the proportional limit..... 804
- IMBEMBO, E. A.  
A method of evaluating transition from shear to cleavage failure in ship plate and its correlation with large-scale plate tests..... 837
- IMLAY, F. H.  
Theoretical motions of hydrofoil systems..... 535
- INGALLS, E. C.  
Residual stresses in a butt-welded structural I-beam..... 1337
- INGLIS, C.  
Analytical determination, shear stresses and torsion stresses in beams and shafts of any given uniform section... 410
- ISAACSON, E.  
Waves against an overhanging cliff.... 1591
- IVEY, H. R.  
Charts for determining the characteristics of sharp-nose airfoils in two-dimensional flow at supersonic speeds. Considerations of the total drag of supersonic airfoil sections..... 521  
Introduction to the problem of rocket-powered aircraft performance..... 565  
Notes on the theoretical characteristics of two-dimensional supersonic airfoils..... 1010  
Theoretical supersonic lift and drag characteristics of symmetrical wedge-shape airfoil sections as affected by sweepback outside the Mach cone... 1032
- IVEY, M. F.  
Collection of test data for lateral control with full-span flaps..... 1025
- J**
- JACKSON, F. H.  
Concrete pavements on the German autobahnen..... 1230
- JACKSON, K. B.  
Curved plates in compression..... 1113
- JACKSON, L. R.  
Fatigue strength and related characteristics of aircraft joints. II. Fatigue characteristics of sheet and riveted joints of 0.040-in. 24S-T, 75S-T, and R303-T275 aluminum alloys..... 624  
Fatigue tests on some spot-welded joints in aluminum-alloy sheet materials.... 625  
Tensile, fatigue, and creep properties of forged-aluminum alloys at temperatures up to 800 F..... 656
- JACKSON, R. P.  
Wind-tunnel procedure for determination of critical stability and control characteristics of airplanes..... 1402
- JACOBS, W.  
Pressure-distribution measurements on unyawed sweptback wings..... 691
- JAEGER, C.  
Underground water tables in the steady state (in French)..... 168  
Water-hammer effects in power conduits..... 1049  
Steady flow in open channels: the problem of Boussinesq..... 1054  
Total impulse and its relation to the total energy of liquid flow with a free surface (in French)..... 1283
- JAEGER, J. C.  
Numerical results for some problems on conduction of heat in slabs with various surface conditions..... 750
- JAGER, F.  
The crushing of pulverizable materials (in French)..... 301
- JAKOB, M.  
Some investigations in the field of heat transfer..... 195  
Heat transfer by free convection from heated vertical surfaces to liquids.... 757
- JÁKY, J.  
Stability of earth works in the plastic state, I. (in French)..... 852  
Stability of earth works in plastic state, II. (in French)..... 1564
- JAMES, H. J.  
The propagation of shock waves in steel and lead..... 563
- JANES, C. E.  
Instruments and methods for measuring the flow of water around ships and ship models..... 1541
- JAW, J. J.  
Theory of unstationary wind current... 1578
- JEFFRIES, R. J.  
Empirical method for frequency compensation of the hot-wire anemometer. 551
- JENKINS, J. E.  
Effect of strength and ductility on burst characteristics of rotating disks. 1321
- JERISON, M.  
Isolated and cascade airfoils with prescribed velocity distribution..... 510
- JOHN, F.  
Waves in the presence of an inclined barrier..... 1594
- JOHN, G.  
A further development in calculating the 'take-off to 50-ft' distance of an airplane..... 1000
- JOHNSON, J. L.  
Application of the sliding-thermocouple method to the determination of temperatures at the interface of a moving bullet and a gun barrel..... 210  
Friction at high sliding velocities..... 577  
Friction of solid films on steel at high sliding velocities..... 906  
A theoretical investigation of the effect of yawing moment due to rolling on lateral oscillatory stability..... 1677
- JOHNSTON, B. G.  
Riveted semirigid beam to column building connections..... 1465
- JOHNSTON, W. C.  
Measures flame velocity of fuels at low pressures..... 566
- JONASSEN, F.  
Fracturing of metals..... 1124
- JONES, A. L.  
Volterra's solution of the wave equation as applied to three-dimensional supersonic airfoil problems..... 499  
An application of lifting-surface theory to the prediction of angle-of-attack hinge-moment parameters for aspect-ratio 4.5 wings..... 513  
An application of Falkner's surface-loading method to predictions of hinge-moment parameters for swept-back wings..... 699

JONES, A. L. (continued)

- The damping due to roll of triangular, trapezoidal, and related planforms in supersonic flow..... 1017
- The rolling moment due to sideslip of triangular, trapezoidal, and related planforms in supersonic flow..... 1679
- JONES, H.  
A theory of the dependence of the rate of detonation of solid explosives on the diameter of the charge..... 181
- JONES, R. A.  
Residual stresses in enameled sheet-iron specimens..... 1606
- JONES, R. T.  
Effects of sweepback on boundary layer and separation..... 678
- Subsonic flow over thin oblique airfoils at zero lift..... 1013
- Effect of hinge-moment parameters on elevator stick forces in rapid maneuvers..... 1027
- A method for studying the hunting oscillations of an airplane with a simple type of automatic control..... 1154
- JONSON, P. O.  
Investigation of formation of cracks in reinforced concrete structures (in French)..... 1346
- JORDAN, V. L.  
The application of Helmholtz resonators to sound-absorbing structures..... 780
- JORISEN, A.  
Elastic behavior of pipes subjected to thermal strains: two-dimensional case (in French)..... 248
- Contribution to the normalization of Venturi tubes (in French)..... 550
- JOVELLANOS, J. U.  
The effect of fuel composition, compression pressure, and fuel-air ratio on the compression-ignition characteristics of several fuels..... 746
- JUKOFF, D.  
Heat transfer to bodies traveling at high speed in the upper atmosphere..... 1304
- ## K
- KADZIALKO, S.  
Concerning tunnel design (in Polish)..... 1340
- KAHANE, A.  
Charts of pressure rise obtainable with airfoil-type axial-flow cooling fans..... 540
- The flow at the rear of a two-dimensional supersonic airfoil..... 694
- Investigation of axial-flow fan and compressor rotors designed for three-dimensional flow..... 1275
- KAHN, N. A.  
A method of evaluating transition from shear to cleavage failure in ship plate and its correlation with large-scale plate tests..... 837
- KALININ, N. K.  
On unsteady motion of ground water with a free surface (in Russian)..... 307
- KAMMERER, C.  
On an equation of state involving the critical coefficient (in German)..... 1696
- KANGAS, P.  
External sound levels of aircraft..... 1712
- KANTROWITZ, A.  
The formation and stability of normal shock waves in channel flows..... 682
- A device for measuring sonic velocity and compressor Mach number..... 1419
- KAPITZA, P. L.  
Theoretical and empirical expressions for heat transfer in two-dimensional turbulent flow..... 751
- KAPLAN, C.  
Effect of compressibility at high subsonic velocities on the moment acting on an elliptic cylinder..... 687
- On the flow of a compressible fluid by the hodograph method. Parts I and II..... 996
- On similarity rules for transonic flows..... 997
- On a new method for calculating the potential flow past a body of revolution..... 1141
- The flow of a compressible fluid past a curved surface..... 1150
- KARP, S. N.  
Aerodynamics of the oscillating airfoil in compressible flow..... 1035
- KARTVELISHVILI, N. A.  
On the conditions of quality of automatic control (in Russian)..... 1309
- KATZOFF, S.  
Interference method for obtaining the potential flow past an arbitrary cascade of airfoils..... 357
- Comparisons of theoretical and experimental lift-and-pressure distributions on airfoils in cascade..... 894
- KAUFMAN, S. J.  
Cylinder-temperature and cooling-air-pressure instrumentation for air-cooled-engine cooling investigations..... 570
- KAWALKI, K. H.  
The calculation of compressible flows with local regions of supersonic velocity..... 339
- KAYAN, C. F.  
Temperatures and heat flow for a concrete slab with imbedded pipes..... 197
- Effect of floor slab on building-structure temperatures and heat flow..... 387
- KAYE, J.  
A survey of the calculated efficiencies of jet power plants..... 186
- KAZARNOVSKAYA, B. F.  
Movement of water-oil interface and water encroachment into wells under hydrostatic head..... 472
- KAZMANN, R. G.  
The induced infiltration of river water to wells..... 1228
- KÈ, T. S.  
Stress relaxation across grain boundaries in metals..... 285
- Experimental evidence of the viscous behavior of grain boundaries in metals..... 643
- KEEBEL, I. A.  
Heating of a viscous fluid by a rotating disk (in Russian)..... 1076
- Exact solutions of two-dimensional vortical flow equations of gas dynamics (in Russian)..... 1505
- KEENAN, J. H.  
A survey of the calculated efficiencies of jet power plants..... 186
- KELLER, H. B.  
Reflection and transmission of sound by a spherical shell..... 944
- KELLER, J. B.  
Reflection and transmission of sound by thin curved shells..... 35
- Reflection and transmission of sound by a spherical shell..... 944
- KEMP, R. H.  
High-temperature strain gages and their application to measurement of vibratory stresses in turbosupercharger buckets..... 235
- KEMPNER, J.  
Recurrence formulas and differential equations for stress analysis of cambered box beams..... 268
- Stress analysis by recurrence formula of reinforced circular cylinders under lateral loads..... 449
- Charts for stress analysis of reinforced circular cylinders under lateral loads..... 450
- KENNEDY, C. C.  
Use of vectors in vibration measurement and analysis..... 25
- KERKHOF, W. P.  
Calculation of pressure vessels in connection with investigation of the occurrence of brittle fractures (in Dutch)..... 649
- KERKHOF, W.  
Solving systems of simultaneous equations with a great number of unknowns (in French)..... 934
- KINCAID, W. M.  
Numerical methods for finding characteristic roots and vectors of matrices..... 205
- KIND-SCHAAD, G.  
Solution of eigenvalue problems by means of punched-card tabulating machines (in German)..... 758
- KING, A. J.  
Attenuation of sound in lined air ducts..... 776
- KING, R. O.  
The oxidation, ignition, and detonation of fuel vapors and gases (Parts I and II)..... 745
- The oxidation, ignition, and detonation of fuel vapors and gases (Part III)..... 1698
- KIRKWOOD, J. G.  
Theory of the propagation of shock waves..... 330
- Theory of the propagation of shock waves from infinite cylinders of explosive..... 331
- Surface waves from an underwater explosion..... 916
- KISELEV, B. M.  
Calculation of one-dimensional gas flow (in Russian)..... 681
- KLAFKE, W.  
The tensor scale (in German)..... 1169
- KLANNER, R.  
Wheel suspension of motor vehicles for cross-country operation (in German)..... 209
- KLEIN, B.  
Stresses in and general instability of monocoque cylinders with cutouts—VI. Calculation of the buckling load of cylinders with side cutout subjected to pure bending..... 623
- Stresses in and general instability of monocoque cylinders with cutouts—III. Calculation of the buckling load of cylinders with symmetric cutout subjected to pure bending..... 810
- The inward bulge-type buckling of monocoque cylinders. V—Revised strain-energy theory which assumes a more general deflected shape at buckling..... 1616
- KLEIN, M. M.  
Pressure distributions and force tests of an NACA 65-210 airfoil section with a 50 per cent chord flap..... 348
- KLEINER, A.  
Amplitude of oscillation and variation of speed in reciprocating engines (in German)..... 14
- Angular amplitude and speed fluctuations in reciprocating engines..... 1443
- KLIEGER, P.  
Effect of entrained air on concretes made with so-called 'sand-gravel' aggregates..... 1640
- KLINE, D. B.  
A further investigation of the meteorological conditions conducive to aircraft icing..... 706
- KLING, R.  
On the sound velocity in certain hydrocarbon mixtures (in French)..... 1418
- KLINGLER, L. J.  
The flow of metals through tools of circular contour..... 304
- Plastic flow characteristics of aluminum-alloy plate..... 1638
- KLITCHIEFF, J. M.  
Torsion of a rectangular tube..... 229
- KLUNKER, E. B.  
Considerations of the total drag of supersonic airfoil sections..... 521
- KLUZ, T.  
Airplane hangars (in Polish)..... 1341
- KLYACHKO, V. A.  
On the influence of the form of grains on the velocity of the filtering stream (in Russian)..... 1430
- KNAPP, R. T.  
Laboratory investigations of the mechanism of cavitation..... 1285
- KNOWLES, J. W.  
Heat transfer with surface boiling..... 1703
- KNOX, E. O.  
Strain tester for rubber..... 1474
- KOCH, J. J.  
Note on the buckling of a vertically submerged tube..... 959
- KOCHIN, N. E.  
Determination of hydrodynamic grids of large interval (in Russian)..... 1660
- KOEHLER, J. S.  
Proposed experiments for further study of the mechanism of plastic deformation..... 92
- KOIZUMI, M.  
The measurement of the viscosity coefficient of sea water..... 1566
- KOLLBRUNNER, C. F.  
Buckling of uniformly compressed rectangular plates in the elastic and plastic ranges (in German)..... 64
- Theoretical studies on buckling by the T.K.V.S.B. in 1947 (in German)..... 1460
- KOMMERS, W. J.  
Critical buckling strength of stiffened flat plywood plates in compression and shear—closely spaced stiffeners..... 1330
- KONAKOV, P. K.  
Coefficient of resistance for smooth pipes (in Russian)..... 1494
- KOO, B.  
Buckling of trusses and rigid frames..... 1619
- KOOFAREV, P. P.  
On a special case of the oscillation of a spiral spring with touching coils (in Russian)..... 1607

- KOPPER, J. M.  
Generalized vibration analysis by means of the mechanical transients analyzer. 18
- KORRACHER  
The flow through axial turbine stages of large radial blade length. 355
- KOVACH, K.  
Analysis of the performance of a jet engine from characteristics of the components. II. Interaction of the components as determined from engine operation. 1406
- KOVASZNAV, L.  
Calibration and measurement in turbulence research by the hot-wire method. 363
- KOVASZNAV, L. I. G.  
Laminar flow behind a two-dimensional grid. 854
- KOZAK, R.  
Studies in boundary lubrication—III. The wear of carbon brushes in dry atmospheres. 1295
- KRALL, G.  
Dynamics and aerodynamics of wires—visible vibrations (in Italian). 16  
Dynamics and aerodynamics of wires—acoustic vibrations (in Italian). 17
- KRASILSHCHIKOVA, E. A.  
Disturbed motion of air caused by vibration of a wing moving at supersonic speed (in Russian). 1034
- KREFELD, W. J.  
Residual stresses in a butt-welded structural I-beam. 1337
- KRIENES, K.  
The oscillating circular airfoil on the basis of potential theory. 538
- KROLL, W. D.  
Instability of simply supported square plate with reinforced circular hole in edge compression. 1463
- KRON, G.  
Tensorial analysis of control systems. 1308
- KRONIG, R.  
On the theory of heat transfer from a wire in an electric field. 932
- KROOZHILIN, G. N.  
Heat emission from a horizontal plate to a boiling liquid at free convection (in Russian). 749
- KRUSZELSKI, E. T.  
Bending stresses due to torsion in a tapered box beam. 453
- KRZYWICKI, C.  
Five examples of frame computation based on theory of plasticity (in Polish). 1343
- KRZYWOBLOCKI, M. Z.  
A general approximation method in the theory of plates of small deflection. 1109
- KUDRIASHOV, L. K.  
Plane parallel gas flow past an ellipse (in Russian). 868
- KUENZL, E. W.  
Torsional buckling of longitudinally stiffened thin-walled plywood cylinders. 1327  
Effect of length on the buckling stresses of thin-walled plywood cylinders in axial compression. 1328  
Stability of a few flat sandwich panels subjected to shear. 1618
- KUHN, P.  
Strength analysis of stiffened beam webs. 634
- KUNTZE, I. P.  
Stability of compressed plates satisfying Prager's theory of plasticity (in French). 262
- KUO, Y. H.  
The propagation of a spherical or a cylindrical wave of finite amplitude and the production of shock waves. 131  
Two-dimensional irrotational transonic flows of a compressible fluid. 1145  
Two-dimensional irrotational transonic flows of a compressible fluid. 1501
- KURIE, F. N. D.  
Vacuum systems, seals, and valves. 1535
- KURZWEG, H.  
Fundamental aerodynamic investigations for development of arrow-stabilized projectiles. 743
- L**
- LABAW, L. W.  
Absorption of supersonic waves in water near one megacycle. 223
- LADOPOULOU, P. D.  
On the mobility of polyhedra (in Greek). 1084
- LAITONE, E. V.  
Exact and approximate solutions of two-dimensional oblique shock flow. 142  
The linearized subsonic and supersonic flow about inclined slender bodies of revolution. 341
- LAMB, J. J.  
Tensile stress-strain relationships of laminated plastics for small strains. 1134  
Tensile and compressive properties of laminated plastics at high and low temperatures. 1641
- LAMBE, C. M.  
Plasters and gypsum cements for the ceramic industry. 1368
- LAMBINE, N. V.  
Flow with separation along an isolated profile of almost rectilinear form (in French). 324
- LAMBLE, J. H.  
Experimental method of stress analysis. A survey of published work on the deflection of and stress in flat plates subject to hydrostatic loading. 790
- LANDWEHR, L.  
The shape and tension of a light flexible cable in a uniform current. 7
- LANGDON, H. H.  
Fatigue of gusseted joints. 1336
- LANGHAAR, H. L.  
Stresses in cylindrical semimonocoque open beams. 53  
Investigations of 24S-T riveted tension joints. 73
- LANGLEY MEMORIAL AERO. LAB., FLIGHT RESEARCH MANEUVERS SECTION  
Flight studies of the horizontal tail loads experienced by a fighter airplane in abrupt maneuvers. 1014
- LANKFORD, W. T.  
The plastic flow of aluminum-alloy sheet under combined loads. 1202  
Some problems in unstable plastic flow under biaxial tension. 1350
- LAPORTE, O.  
An investigation of the exact solutions of the linearized equations for the flow past conical bodies. 1243
- LAPSELEY, J. T.  
Room temperature tensile properties of aluminum-alloy sheet following brief elevated-temperature exposure. 118
- LAPWOOD, E. R.  
Convection of a fluid in a porous medium. 1717
- LATTANZI, B.  
Aerodynamic tests on torpedo models with aerial tail units (in Italian). 917
- LAUFER, J.  
Investigations of free turbulent mixing. 481
- LAURENCE, J. C.  
Interference method for obtaining the potential flow past an arbitrary cascade of airfoils. 357
- LAURENT, P.  
Synthesis of the modern theories on the plasticity of metals (in French). 831
- LAWRENCE, H. R.  
The dynamics of a swept wing. 212
- LAZARD, A.  
Contribution to the theoretical study of gradually varied flow in hydraulics (in French). 1482
- LEARY, W. A.  
The effect of fuel composition, compression pressure, and fuel-air ratio on the compression-ignition characteristics of several fuels. 746
- LEDINEGG, M.  
The mechanism of turbulence (in German). 1519
- LEDUC, R.  
Model tests on thermopropulsive nozzles (in French). 1389
- LEE, E. H.  
The theory of wedge indentation of ductile materials. 102  
The theory of combined plastic and elastic deformation with particular reference to a thick tube under internal pressure. 282
- LEE, G.  
A field instrument for measuring volume and instantaneous flow rate of inspired air. 1694
- LEES, L.  
The stability of the laminar boundary layer in a compressible fluid. 485
- LEES, L. (continued)  
The flow at the rear of a two-dimensional supersonic airfoil. 694
- LEFOL, J.  
Ship resistance—hull and propeller interaction. 1289
- LEHNICKI, S. G.  
The bending of a rectangular orthotropic plate resting on parallel rigid ribs (in Russian). 1325
- LEIBENZON, L. S.  
Course in the theory of elasticity (in Russian). 1315
- LEIDHEISER, H.  
Influence of crystal plane and surrounding atmosphere on chemical activities of single crystals of metals. 1165  
Influence of crystal plane and surrounding atmosphere on some types of friction and wear between metals. 1725
- LEIMANIS, E.  
Integration by quadratures of the flight of a projectile in a medium of variable density and temperature (in French). 914
- LEITNER, H.  
Reinforcement of structures against wind and earthquake forces (in German). 637
- LELOUP, L.  
Study of a regime of lubrication: film friction of journal bearings (in French). 174
- LEMMER, H. A.  
Force and pressure-distribution measurements on a rectangular wing with double-hinged nose. 326
- LEMMER, H. G.  
Force and pressure-distribution measurements on a rectangular wing with a slotted droop nose and with either plain and split flaps in combination or a slotted flap. 517
- LEPPERT, E. L., JR.  
An application of IBM machines to the solution of the flutter determinant. 159  
Theoretical pressure distributions for a thin airfoil oscillating in incompressible flow. 1231
- LE ROLLAND, P.  
On a new method of determining the energy dissipation due to internal friction in solid bodies (in French). 1219
- LESLIE, J. R.  
Absorption measurements of sound in sea water. 1713
- LETHEBRICH, W.  
Apparatus for the study of the rheological properties of dielectrics. 984
- LETKO, W.  
Correlation of two experimental methods of determining the rolling characteristics of unswept wings. 1015
- LEVEN, M. M.  
A new material for three-dimensional photoelasticity. 1603
- LEVENSON, M.  
The response of a system with a single degree of freedom to a blast load. 774
- LEVI, F.  
On static effects of viscous phenomena (in Italian). 1348
- LEVI, R.  
Note on buckling, particularly of arches (in French). 617
- LEVYANT, I.  
Study of varying flow in an open canal (in French). 553
- LEVIN, L. M.  
Equations of motion of a rocket (in Russian). 1422
- LEVIN, L. R.  
Strength of thin-web beams with transverse load applied at an intermediate upright. 968
- LEVY, R. S.  
Effect of bending rigidity of stringers upon stress distribution in reinforced monocoque cylinder under concentrated transverse loads. 639
- LEVY, S.  
Computation of influence coefficients for aircraft structures with discontinuities and sweepback. 79  
Reinforcement of a small circular hole in a plane sheet under tension. 1110  
Instability of simply supported square plate with reinforced circular hole in edge compression. 1463
- LEWIS, B.  
Ignition and flame stabilization in gases. 1067
- LEWIS, F. M.  
Propeller-tunnel notes. 1059



- LEWIS, G. W., JR.  
Analytical and experimental performance of an explosion-cycle combustion chamber for a jet-propulsion engine..... 1408
- LEWIS, J. A.  
Boundary layer in compressible fluid... 1238
- LEWIS, R. C.  
Simplified method for design of vibration-isolating supports..... 215
- LEWIS, W.  
A flight investigation of the meteorological conditions conducive to the formation of ice on airplanes..... 559  
A further investigation of the meteorological conditions conducive to aircraft icing..... 706
- LEWY, H.  
The dock problem..... 1590
- L'HERITEAU, G.  
Remarks on some highly preconsolidated clays (in French)..... 1139
- LIBOVE, C.  
A relaxation procedure for the stress analysis of a continuous beam column elastically restrained against deflection and rotation at the supports... 606  
Stress and distortion measurements in a 45-deg swept box beam subjected to bending and to torsion..... 638  
A general small-deflection theory for flat sandwich plates..... 799
- LIBSCH, L. F.  
Effect of welding on ductility and notch sensitivity of some ship steels..... 466
- LIEBERMANN, L. N.  
Reflection of underwater sound from the sea surface..... 1185
- LIEPMANN, H. W.  
Investigations of free turbulent mixing. Investigations of effects of surface temperature and single-roughness elements on boundary-layer transition... 488
- LIGHTHILL, M. J.  
The hodograph transformation in transonic flow..... 994  
Supersonic flow past slender pointed bodies of revolution at yaw..... 1388
- LIN, C. C.  
On the mechanical behavior of metals in the strain-hardening range..... 99  
On the nature of the boundary layer near the leading edge of a flat plate... 857  
On the flow behind curved shocks..... 1391  
Velocity and temperature distributions in turbulent jets..... 1394
- LINDNER, N. J.  
Application of the analogy between water flow with a free surface and two-dimensional compressible gas flow... 1502
- LINDSAY, R. B.  
Compressional wave-front propagation through a simple vortex..... 587
- LINDSEY, W. F.  
The flow and force characteristics of supersonic airfoils at high subsonic speeds..... 1018  
Characteristics of low-aspect-ratio wings at supercritical Mach numbers..... 1397
- LINDSLEY, C. H.  
End effect in rotational viscometers.... 895
- LING, C. B.  
Torsion of a circular tube with longitudinal circular holes..... 40  
Stresses in a notched strip under tension. On the stresses in a plate containing two circular holes..... 411  
On the stresses in a notched plate under tension..... 598  
The stresses in a plate containing an overlapped circular hole..... 784
- LINNETT, J. W.  
The determination of flame speeds in gaseous mixtures..... 1510
- LIPPISCH, A.  
Pressure distribution measurements at high speed and oblique incidence of flow 350
- LIVENGOOD, J. C.  
A study of piston-ring friction..... 735
- LIVENS, G. H.  
The boundary-value problems of plane stress—I..... 600
- LOYD, E. H.  
An x-ray method of measuring Poisson's ratio..... 236
- LOYD, P.  
Determination of gas-turbine combustion-chamber efficiency by chemical means..... 922
- LO, H. (continued)  
buckling load of long flat plates under shear..... 1114
- LOCATI, L.  
On the damping effect of some copper alloys (in Italian)..... 661
- LOCKE, F. W. S., JR.  
A preliminary correlation of the behavior of water rudders on seaplanes and flying boats..... 371
- LOE, J. A.  
The deterioration of concrete: Some factors affecting the resistance of concrete to frost action (in French)..... 1371
- LOEB, C. M., JR.  
Molybdenum—steels, irons, alloys.... 1642
- LOFTIN, L. K., JR.  
Theoretical and experimental data for a number of NACA 6A-series airfoil sections..... 531  
Aerodynamic characteristics of a number of modified NACA four-digit-series airfoil sections..... 1398
- LOH, M. H.  
Buckling of trusses and rigid frames.... 1619
- LOITSANSKY, L. G.  
Drag of a grid of profiles in a flow of a viscous incompressible fluid (in Russian)..... 1140
- LOMAX, H.  
Volterra's solution of the wave equation as applied to three-dimensional supersonic airfoil problems..... 499  
The use of source-sink and doublet distributions extended to the solution of arbitrary boundary-value problems in supersonic flow..... 500  
Sideslip angles and vertical tail loads in rolling pull-out maneuvers..... 692  
Sideslip angles and vertical tail loads developed by periodic control deflections..... 1526
- LONDON, A. L.  
Gas-turbine plant combustion-chamber efficiency..... 919
- LOOK, B. C.  
A method for calculating heat transfer in the laminar flow region of bodies.... 1074
- LOOKOMSKAYA, M. A.  
Solution of some problems on flow of a liquid to wells (in Russian)..... 851
- LOOBYE, A. L.  
On the stability of motion of a dynamic system (in Russian)..... 765  
The reduction of round-off errors with increase of the number of measurements (in Russian)..... 1416
- LORING, S. J.  
Experimental determination of vibration characteristics of structures..... 396
- LOTKIN, M. M.  
Vorticity in the supersonic flow about yawing cones..... 1664
- LOTZE, I.  
Investigation on the validity of an ideal theory of elastoplasticity for wrought-aluminum alloys..... 1210  
Fracture strength of 75S-T aluminum alloy under combined stress..... 1357
- LOURYE, A. L.—See Loorye, A. L.
- LOVELL, P. M., JR.  
The effect of wing-bending deflection on the rolling moment due to sideslip... 708
- LOW, J. R., JR.  
Precision determination of stress-strain curves in the plastic range..... 106  
The plastic flow of aluminum-alloy sheet under combined loads..... 1202
- LOWRIE, R. E.  
Report on the fracture of metals, Parts I, II..... 276
- LOWRY, J. G.  
Wind-tunnel investigation of unshielded horn balances on a horizontal tail surface..... 523  
Investigation at low speed of the longitudinal stability characteristics of a 60-deg sweptback tapered low-drag wing..... 1258
- LOYTSANSKY, L. G.  
Reciprocal action of the boundary layer on the distribution of pressure over the surface of a body in a flow (in Russian) 482
- LUBAHN, J. D.  
Nondestructive measurement of residual and enforced stresses by means of x-ray diffraction..... 44
- LUDVIGSON, B.  
Calculation of frames and arches by the method of primary moments (in Swedish)..... 1120
- LUDWIG, H.  
Drag corrections in high-speed wind tunnels..... 729
- LUDWIG, K.  
Heating of a wall in the starting of a heating plant (in German)..... 1548
- LUISONI, C. J.  
Variational solution of the problem of simply supported deep rectangular beams (in Spanish)..... 1608
- LUKE, Y. L.  
The flutter of a uniform wing with tip weights..... 717
- LUSTERNIK, L. A.  
The determination of eigenvalues and eigenfunctions of certain operators by means of a recurrent circuit..... 761
- LUTHANDER, S.  
The safety concept in strength of materials from the statistical viewpoint (in Swedish)..... 291
- LYONS, W. J.  
Method for the absolute measurement of dynamic properties of linear structures at sonic frequencies..... 1133

## M

- MAAG, E.  
Static method for the calculation of bearing capacity of piles (in German). 119
- MACDOUGALL, D. P.  
Explosives with lined cavities..... 1300
- MACGREGOR, C. W.  
Approximate solutions for symmetrically loaded thick-walled cylinders..... 228  
Correlated brittle fracture studies of notched bars and simple structures... 287  
The brittle transition temperatures of various low-carbon steels welded by the same method..... 819  
Partially plastic thick-walled tubes... 977  
The plastic flow of thick-walled tubes with large strains..... 979  
Some new aspects of the fatigue of metals brought out by brittle transition temperature tests..... 1212  
Contact stresses in the rolling of metals—I..... 1648
- MACHLER, R. C.  
Application of the sliding-thermocouple method to the determination of temperatures at the interface of a moving bullet and a gun barrel..... 210
- MACHLIN, E. S.  
Dislocation theory as applied by NACA to the creep of metals..... 286  
Dislocation theory of the fatigue of metals..... 836
- MACKIN, G. E.  
An investigation of mechanical properties of honeycomb structures made of resin-impregnated paper..... 1137
- MACLACHLAN, R.  
Correlation of two experimental methods of determining the rolling characteristics of unswept wings..... 1015
- MACLELLAN, G. D. S.  
A critical survey of wire-drawing theory. 848
- MAGGIN, B.  
Flight tests of airplane models with a 42 and a 62-deg sweptback wing in the Langley free-flight tunnel..... 713  
Low-speed stability and damping-in-roll characteristics of some highly swept wings..... 880
- MAGNEL, G.  
The principles of prestressed concrete... 821
- MAGUIRE, C. R.  
Attenuation of sound in lined air ducts... 776
- MAINS, R. M.  
A strain-gage balance system for a supersonic wind tunnel..... 1277
- MALINA, F. J.  
The problem of escape from the earth by rocket..... 153
- MALKUS, W. V. R.  
Analysis and preliminary design of an optical instrument for the measurement of drop size and free-water content of clouds..... 1064
- MALMQUIST, L.  
Temperature measurements in high-velocity gas streams..... 899
- MALVESTUTO, F. S., JR.  
Formulas for additional-mass corrections to the moments of inertia of airplanes..... 707  
Stability derivatives of triangular wings at supersonic speeds..... 1004

- MANACORDA, T.  
Forced vibrations of a particular non-linear vibrating system (in Italian)... 1449
- MANDEL, J.  
On small deformations of media possessing internal friction (in French)... 306  
On the calculation of the center of torsion of a cylinder by means of the reciprocity theorem (in French)... 1105
- MANSON, S. S.  
High-temperature strain gages and their application to measurement of vibratory stresses in turbosupercharger buckets... 235  
The determination of elastic stresses in gas-turbine disks... 423  
Determination of stresses in gas-turbine disks subjected to plastic flow and creep... 1125
- MANY, A.  
An electrical network for determining the eigenvalues and eigenvectors of a real symmetric matrix... 201
- MARBLE, F. E.  
The flow of a perfect fluid through an axial turbomachine with prescribed blade loading... 1400
- MARGOLIS, K.  
Effect of chordwise location of maximum thickness on the supersonic wave drag of sweptback wings... 698  
Supersonic wave drag of sweptback tapered wings at zero lift... 1008  
Supersonic wave drag of nonlifting sweptback tapered wings with Mach lines behind the line of maximum thickness... 1379
- MARGUERRE, K.  
On the application of the energy method to stability problems... 255
- MARIN, J.  
A new fatigue strength-damping criterion for the design of resonant members  
Creep deflections in columns... 104  
Static and dynamic creep properties of laminated plastics for various types of stress... 257 1366
- MARKL, A. R. C.  
Fatigue tests of welding elbows and comparable double-miter bends... 75  
Fatigue tests of welding elbows and comparable double-miter bends... 1229
- MARKOV, A. A.  
Variation principles in the theory of plasticity (in Russian)... 97
- MARKOV, N. M.  
Calculation of profile losses in reaction turbines and compressor grids for shock-free gas flow around them... 1161
- MARKSON, A. A.  
Development of an air-operated force-measuring system... 948
- MARMET, P.  
Calculation of damping indices and thermal lag of walls (in French)... 199
- MARRIOTT, R. R.  
A constant-stress apparatus for the study of the creep properties of plastics... 985
- MARTIN, M. H.  
A problem in the propagation of shock... 130
- MARTINELLI, R. C.  
Heat transfer to molten metals... 573  
An investigation of aircraft heaters. XXIX—Comparison of several methods of calculating heat losses from airfoils... 1701
- MARWOOD, W. J.  
Ship vibration... 768
- MASLEN, S. H.  
Method for calculation of pressure distributions on thin conical bodies of arbitrary cross section in supersonic stream... 1386
- MASON, W. P.  
Measurement of the viscosity and shear elasticity of liquids by means of a torsionally vibrating crystal... 4  
Attenuation and scattering of high-frequency sound waves in metals and glasses... 221  
Viscosity and shear elasticity measurements of liquids by means of shear vibrating crystals... 900
- MASSONNET, C.  
Buckling of bars of open cross section and thin walls (in French)... 1197
- MATHESON, H.  
A highly sensitive differential manometer... 1538
- MATHEN, V.  
The universality of the differential dilatometer with Chevenard photographic registration system (in French)... 170
- MAXFIELD, J. P.  
The time integral basic to optimum reverberation time... 1711
- MAYER, M., JR.  
Axial fatigue tests at zero mean stress of 24S-T and 75S-T aluminum-alloy strips with a central circular hole... 1481
- MAYNE, R.  
Evaluation of various methods of rotor-blade analysis by means of a structural model... 83
- MAYO, W. L.  
Solutions for hydrodynamic impact force and response of a two-mass system with an application to an elastic airframe... 703
- MCDAM, D. J., JR.  
Elastic properties in tension and shear of high-strength nonferrous metals and stainless steel—effect of previous deformation and heat treatment... 660
- MCBREARTY, J. F.  
A critical study of aircraft landing gears... 827
- MCCAFFERTY, R. J.  
Effect of combustor-inlet conditions on combustion in turbojet engines... 384
- MCCANN, G. D.  
Generalized vibration analysis by means of the mechanical transients analyzer... 18
- MCCULLOCH, J. C.  
The local buckling strength of lipped Z-columns with small lip width... 435
- MCDONALD, H. J.  
Determination of physical chemical factors in stress-corrosion cracking of mild steel... 641
- MCDONALD, J. C.  
Prediction and reduction to minimum properties of plate compressive curves... 807
- MCDOWELL, C. M.  
Stresses in rotating disks by radius of curvature integration... 249
- MCGEADY, L. J.  
The meaning and measurement of transition temperature... 1129
- MCGINLEY, J. G.  
Static structural tests of eleven lightweight anchors... 795
- MCGREARY, L. J.  
Effect of welding on ductility and notch sensitivity of some ship steels... 466
- MCHENRY, D.  
Laboratory measurements of stress distribution in reinforcing steel... 1118  
Lattice analogy in concrete design... 1624
- McKEE, S. A.  
Measurements of combined frictional and thermal behavior in journal-bearing lubrication... 905
- McKEOWN, J.  
Investigations on delay-action fuses... 182  
The significance of mechanical testing... 289
- McKIE, D.  
Natural philosophy through the eighteenth century and allied topics... 1707
- McKINNEY, M. O., JR.  
Generalized performance comparison of large conventional, tail-boom, and tailless airplanes... 702  
Dynamic lateral stability as influenced by mass distribution... 1255  
Lateral stability and control characteristics of a free-flying model having an unswept wing with an aspect ratio of 2... 1673
- McKINNON, P. F.  
Critical buckling strength of stiffened flat plywood plates in compression and shear—closely spaced stiffeners... 1330
- McLACHLAN, N. W.  
Vibrational problems in elliptical coordinates... 26
- McLELLAN, C. H.  
Effects of nacelle position on wing-nacelle interference... 1263
- McNAMEE, J.  
The two-dimensional potential problem of seepage into a cofferdam... 1227
- McNOWN, J. S.  
Cavitation and pressure distribution... 1486  
Pressure distribution and cavitation on submerged boundaries... 1656
- McPHERSON, A. E.  
Reinforcement of a small circular hole in a plane sheet under tension... 1110
- McSKIMIN, H. J.  
Attenuation and scattering of high-frequency sound waves in metals and glasses... 221
- McVITTIE, G. C.  
The equations governing the motion of a perfect-gas atmosphere... 1576
- MEBS, R. W.  
Elastic properties in tension and shear of high-strength nonferrous metals and stainless steel—effect of previous deformation and heat-treatment... 660
- MEDBERRY, A. F.  
Performance tests of wire strain gages—V. Error in indicated bending strains in thin sheet metal due to thickness and rigidity of gage... 412
- MEHAFFEY, W. R.  
A direct coupled amplifier for recording dynamic strain... 1605
- MEIBOOM, S.  
An electrical network for determining the eigenvalues and eigenvectors of a real symmetric matrix... 201
- MEKSYN, D.  
The laminar boundary-layer equations... 1144  
The laminar boundary-layer equations of bodies of revolution. Motion of a sphere... 1669
- MELCHIOR, P.  
Analysis of the motion of the pole on the surface of the earth (in French)... 1575
- MENDELSON, R. A.  
A semigraphical method of computing stick forces for spring-tab controls having nonlinear hinge-moment characteristics... 715
- MERRINGTON, A. C.  
The breakup of liquid jets... 554
- MEUSER, R. B.  
Vibration of a nonlinear system during acceleration through resonance... 583
- MEYER, H.  
Response characteristics as regulating criteria... 1583
- MEYER, R. E.  
The method of characteristics for problems of compressible flow involving two independent variables... 1516
- MEZGER, E.  
Empirical relation between the density of a liquid and the density of saturated vapor (in French)... 188
- MICHAL, A. D.  
Matrix and tensor calculus with applications to mechanics, elasticity, and aeronautics... 1706
- MICHAUD, M.  
Emissivity of cavities of simple geometric forms (in French)... 1075  
Influence of the surface condition of a radiating material on the value of emissivity at high temperature (in French)... 1413
- MICHE, R.  
Determination by a variational principle of movement of viscous fluids when the movement is not slow (in French)... 1496
- MICHEL, A.  
Thermodynamical properties of carbon dioxide as function of density and temperature; of pressure and temperature... 1066  
The Joule-Thomson effect and the specific heat at constant pressure of carbon dioxide... 1073
- MICHLIN, S. G.  
Fundamental solutions of the dynamic equations of the theory of elasticity for nonhomogeneous media (in Russian)... 597
- MIGOTSKY, E.  
Full-scale investigation of the blade motion of the PV-2 helicopter rotor... 722
- MIKELADZE, S. E.  
Bending of a beam on elastic foundation, loaded longitudinally and laterally (in Russian)... 605
- MIKLOWITZ, J.  
The initiation and propagation of the plastic zone in a tension bar of mild steel under eccentric loading... 86  
The initiation and propagation of the plastic zone in a tension bar of mild steel as influenced by the speed of stretching and rigidity of testing machines... 101
- MILES, J. W.  
The aerodynamic forces on an oscillating airfoil at supersonic speeds... 156  
The diffraction of sound due to right-angled joints in rectangular tubes... 405  
The equivalent circuit for a bifurcated cylindrical tube... 782  
Harmonic and transient motion of a swept wing in supersonic flow... 1530

MILLENSON, M. B. Effect of centrifugal force on the elastic curve of a vibrating cantilever beam... Determination of stresses in gas-turbine disks subjected to plastic flow and creep.....	401 1125	MORETTI, G. The theory of turbulent transport (in Italian)..... Plane turbulent wakes (in Italian).....	324 325	NABARRO, F. R. N. Dislocations in a simple cubic lattice....	279
MILLER, J. A. Stress-strain and elongation graphs for Alclad aluminum-alloy 75S-T sheet... Stress-strain and elongation graphs for Alclad aluminum-alloys 24S-T and 24S-T81 sheets.....	470	MORGAN, W. C. High-temperature strain gages and their application to measurement of vibratory stresses in turbosupercharger buckets.....	235	NACA SUBCOMMITTEE ON COMBUSTION Symbols for combustion research.....	921
MILLIKAN, C. B. High-speed testing in the Southern California Co-operative Wind Tunnel.....	842	MORKOVIN, D. The effect of nonuniform distribution of stress on the yield strength of steel....	646	NAGLER, K. M. An analysis of the wind and temperature distribution in the free atmosphere over North America in a case of approximately westerly flow.....	1435
MILLIKEN, W. F., JR. Progress in dynamic stability and control research.....	898	MORLEY, A. W. Equilibrium running of the simple jet-turbine engine.....	1274	NARDO, S. V. The inward bulge-type buckling of monocoque cylinders. IV—Experimental investigation of cylinders subjected to pure bending.....	1326
MILLINGTON, B. W. Centrifugal governors with flyweights of distributed mass.....	154	MORRIS, E. H. An investigation of aircraft heaters. XXIX—Comparison of several methods of calculating heat losses from airfoils.....	580	NARODEZKY, M. Z. Stresses in a nonhomogeneous circular cylinder (in Russian).....	595
MILLS, C. H. G. A capacitance-type torque meter.....	939	MORRIS, R. M. The boundary-value problems of plane stress—I..... The two-dimensional hydrodynamical theory of moving airfoils—IV.....	600 672	NASH, W. A. Effect of a concentric reinforcing ring on stiffness and strength of a circular plate.....	607
MILNE-THOMSON, L. M. Stress in an infinite half plane.....	38	MORTENSON, C. H. The bending modulus of rupture of round magnesium tubing.....	1639	NEELY, R. H. Method for calculating wing characteristics by lifting line theory using nonlinear section lift data.....	1001
MILWITZKY, B. A generalized theoretical and experimental investigation of the motions and hydrodynamic loads experienced by V-bottom seaplanes during step-landing impacts..... A generalized theoretical investigation of the hydrodynamic pitching moments experienced by V-bottom seaplanes during step-landing impacts and comparisons with experiment.....	709 1180	MOSES, H. E. The head-on collision of a shock wave and a rarefaction wave in one dimension.....	874	NEFF, J. Buckling stresses of simply supported rectangular flat plates in shear.....	436
MINDLIN, R. D. Response of damped elastic systems to transient disturbances..... Stress distribution around a hole near the edge of a plate under tension.....	1088 1189	MOSES, J. J. An investigation of backflow phenomena in centrifugal compressors.....	1533	NEHOUSE, A. I. The effect of variations in moments of inertia on spin and recovery characteristics of a single-engine low-wing monoplane with various tail arrangements, including a twin tail.....	1157
MINIKIN, R. R. Retaining walls of flexible sheeting.....	1429	MOSSMAN, E. A. Effect of pressure recovery on the performance of a jet-propelled airplane....	1399	NELSON, R. L. Characteristics of thin triangular wings with constant-chord partial-span control surfaces at supersonic speeds.... Theoretical characteristics in supersonic flow of constant-chord partial-span control surfaces on rectangular wings having finite thickness.....	1257 1663
MINORSKY, N. Experiments with activated tanks..... Self-excited mechanical oscillations..... Modern trends in nonlinear mechanics..	13 771 1550	MOSTARDI, E. On the possibility of realization of high-speed wind tunnels utilizing boundary-layer suction on the diffuser walls (in Italian).....	1047	NELSON-SKORNYAKOV, F. B. Filtration through dams and dikes with a core or screen (impervious foundation) (in Russian).....	1223
MINTZ, F. Instruments at the David Taylor Model Basin for measuring vibration and shock on ship structures and machinery.....	1593	MOTT, B. W. Investigations on aluminum alloys of high strength at room temperature....	1372	NEMENYI, P. Some properties of rotational flow of a perfect gas.....	855
MINZBERG, B. L. A mixed boundary problem of the theory of elasticity for a plate with a circular hole (in Russian).....	1601	MOTT, N. F. Slip at grain boundaries and grain growth in metals.....	978	NERLICH, W. Design and reinforcement of circular concrete foundation slabs (in German).....	627
MIRELS, H. Theoretical wave drag and lift of thin supersonic ring airfoils.....	1251	MOTZ, H. The treatment of singularities of partial differential equations by relaxation methods.....	5	NEUBAUER, E. T. P. Torsional stress analysis of twist-drill sections by membrane analogy.....	49
MUYAKE, Y. The measurement of the viscosity coefficient of sea water.....	1566	MUCKLE, W. The design of light-alloy ships' structures..... Resistance to buckling of light-alloy plates.....	973 1111	NEVILLE, E. H. Ill-conditioned sets of linear equations..	1172
MOECKEL, W. E. Charts for the determination of supersonic air flow against inclined planes and axially symmetric cones.....	505	MULHOLLAND, D. R. Investigation of effectiveness of air heating a hollow steel propeller for protection against icing: I. Unpartitioned blades; II. 50 per cent partitioned blades; III. 25 per cent partitioned blades.....	1026	NEVZGLADOFF, V. G. Theory of turbulent movement of compressible fluids (in Russian)..... Application of the phenomenological turbulence theory to flow in pipes (in Russian).....	326 674
MÖHLER, K. Calculated and observed values of permissible load and buckling of simple and composite wooden beams (in German).....	611	MUMFORD, A. R. An investigation of the variation in heat absorption in a pulverized-coal-fired water-cooled steam-boiler furnace, I, II, III, IV.....	1411	NEWMAN, S. B. A statistical analysis of some mechanical properties of manila rope.....	1369
MOHRMAN, H. W. Creep, long-time tensile and flexural fatigue properties of melamine, phenolic plastics.....	112	MUNK, M. M. Surface-pressure gradient and shock-front curvature at the edge of a plane ogive with attached shock front.....	1665	NEWMARK, N. M. A numerical solution for the torsion of hollow sections..... Design of I-beam bridges..... Influence charts for computation of vertical displacements in elastic foundations.....	247 628 783
MOISIL, G. C. On a generalization of the Airy function (in French).....	1452	MUNK, W. H. A critical wind speed for air-sea boundary processes..... Tracking storms by forerunners of swell..	738 1568	NEWTON, R. R. Mathematical theory of rocket flight...	912
MONG, L. E. Elastic behavior and creep of refractory bricks under tensile and compressive loads.....	300	MUNNIKHUYSEN, R. D. High-range true air-speed indicator.....	548	NICHOLS, R. H., JR. Flow-resistance characteristics of fibrous acoustical materials..... Acoustical materials and acoustical treatments for aircraft.....	29 406
MONTGOMERY, R. B. Viscosity and thermal conductivity of air and diffusivity of water vapor in air.....	1298	MURAOUR, H. Comparison of observed and calculated pressures of a gas mixture at elevated temperature and pressure (in French). Powders and explosives (in French).....	1424 1559	NICOLSON, P. A practical method for numerical evaluation of solutions of partial differential equations of the heat-conduction type.....	203
MOODY, L. F. An approximate formula for pipe friction factors.....	370	MURNAGHAN, F. D. Introduction to applied mathematics....	1551	NIEHUS, K. H. Requirements of steel for gas turbines...	1683
MOORE, R. L. Observations on the behavior of some noncircular aluminum-alloy sections loaded to failure in torsion..... Bearing strengths of some aluminum-alloy sand castings.....	417 1370	MYERS, G. C., JR. Flight tests of a helicopter in autorotation, including a comparison with theory..... Flight measurements of helicopter blade motion with a comparison between theoretical and experimental results..	790 704	NIKITIN, A. K. On some properties of the trajectories of a conservative system (in Russian)...	1085
MOOSHTARI, K. M. The invariant equilibrium equations, in complex form, of the boundary zone of an elastic shell (in Russian).....	957	MYLONAS, C. The optical system of polariscopes as used in photoelasticity.....	791	NIKOLAYEV, G. Stresses in structural members during welding (in Russian).....	967
MOREAU, J. J. Behavior at infinity of slow steady flow (in French)..... On two general theorems in the dynamics of an infinite incompressible substance (in French).....	476 1232			NILES, D. E. Data on optimum length, shear strength, and tensile strength of age-hardened	

## N



- NILES, D. E. (*continued*)  
178-T machine-countersunk rivets in 75S-T sheet..... 448  
Column and plate compressive strengths of aircraft structural materials: Extruded 0-1HTA magnesium alloy..... 662
- NORDSON, F. I. N.  
Buckling of conical shells subjected to uniform external lateral pressure..... 806
- NIPPES, E. F.  
State of stress in arc welds made under transverse restraint..... 1116
- NITZBERG, G. E.  
The effect of compressibility on the growth of the laminar boundary layer on low-drag wings and bodies..... 677  
Some fundamental similarities between boundary-layer flow at transonic and low speeds..... 992
- NOLL, G. C.  
Allowable stresses for steel members of finite life..... 1214
- NOLLE, A. W.  
Acoustic determination of the physical constants of rubberlike materials..... 293  
Methods for measuring dynamic mechanical properties of rubberlike materials..... 1362
- NORDENFELT, K. H.  
Ballistic experiments and air resistance (in Swedish)..... 1256
- NORDSTRÖM, H. F.  
Screw-propeller characteristics..... 1060  
Some systematic tests with models of fast cargo vessels..... 1726
- NORRIS, C. B.  
An improved photoelastic method for determining plane stresses..... 242  
An investigation of mechanical properties of honeycomb structures made of resin-impregnated paper..... 1137  
Torsional buckling of longitudinally stiffened thin-walled plywood cylinders..... 1327  
Critical buckling strength of stiffened flat plywood plates in compression and shear—closely spaced stiffeners..... 1330  
Effect of axial stiffeners on the buckling properties of thin curved plywood plates in axial compression..... 1459
- NORTCLIFFE, J.  
Measurement of Young's modulus at high temperatures..... 1636
- NORTHROP, J. K.  
The development of all-wing aircraft..... 150
- NORTHWOOD, T. D.  
Sonic determination of the elastic properties of ice..... 663
- NORTON, J. T.  
Recent contributions to the x-ray method in the field of stress analysis..... 237
- NORZI, L.  
On the general theory of elastic instability (in Italian)..... 427  
Spiral cracks in glass tubing..... 458  
Theory of elastic instability (in Italian)..... 1333
- NOWICK, A. S.  
Dislocation theory as applied by NACA to the creep of metals..... 286
- NUZHIN, S. G.  
Calculation of potential flow of an incompressible fluid past an airfoil of arbitrary shape (in Russian)..... 317
- NYBORG, W. L.  
Ultrasonic propagation in open air..... 590
- O**
- OBERTI, G.  
Research on initial stresses in structures (in Italian)..... 88
- OBORNY, L. F.  
Introduction to the problem of rocket-powered aircraft performance..... 565
- O'CONNOR, B. E.  
The viscous torsional vibration damper..... 214
- ODER, F. C. E.  
The magnitude of radiative heating in the lower stratosphere..... 1166
- ODLEY, E. G.  
Deflections and moments of a rectangular plate clamped on all edges and under hydrostatic pressure..... 252
- ÖDMAN, S. T. A.  
A method for solving partial differential equations with application to rectangular plates..... 1585
- OFFICUTT, J. S.  
Plasters and gypsum cements for the ceramic industry..... 1368
- OHlig, R.  
Rectangular plates supported on either two or four sides under a single concentrated load (in German)..... 1612
- OKRENT, D.  
Thermodynamic charts for the computation of fuel quantity required for constant-pressure combustion with diluents..... 1410
- OLDROYD, J. G.  
A rational formulation of the equations of plastic flow for a Bingham solid..... 93  
Two-dimensional plastic flow of a Bingham solid: a plastic boundary-layer theory for slow motion..... 1207  
Rectilinear plastic flow of a Bingham solid: I. Flow between eccentric circular cylinders in relative motion. II. Flow between confocal elliptic cylinders in relative motion. III. A more general discussion of steady flow. IV. Nonsteady motion..... 1208
- OLSON, T. A.  
The effect of eccentric loading, protective shells, slenderness ratios, and other variables in reinforced concrete columns..... 1119
- OLSON, W. T.  
Temperature measurements and combustion efficiency in combustors for gas-turbine engines..... 1301
- OLSAK, W.  
Vibrating of concrete during the setting process (in Polish)..... 987  
On the theory of prestressed beams and plates (in Polish)..... 1201
- ONGARO, M.  
Mechanical characteristics and practical efficiency of some types of high-speed steels (in Italian)..... 1649
- OPPELT, W.  
The transfer-locus method for servomechanisms with friction (in German)..... 1581
- ORLIN, W. J.  
Application of the analogy between water flow with a free surface and two-dimensional compressible gas flow..... 1502
- ORLOFF, P. I.  
Coefficient of friction, oil flow and heat balance of a full-journal bearing..... 556
- OSBORNE, M. F. M.  
The shock produced by a collapsing cavity in water..... 170
- OSGOOD, W. R.  
Combined-stress tests on 24S-T aluminum-alloy tubes..... 100
- O'SULLIVAN, T. P.  
Driving and loading tests on six precast concrete piles in gravel..... 1563
- OSWATITSCH, K.  
Theoretical analysis of stationary potential flows and boundary layers at high speed..... 869
- OTTO, E. W.  
Analysis of accuracy of gas-filled bellows for sensing gas density..... 896
- P**
- PACK, D. C.  
An investigation, by the method of characteristics, of the lateral expansion of the gases behind a detonating slab of explosives..... 381  
The propagation of shock waves in steel and lead..... 563  
On the formation of shock waves in supersonic gas jets..... 1151
- PADMOS, A. A.  
Stresses in glass and their measurement..... 657
- PADUART, A.  
Secondary deflections in metallic ties (in French)..... 1101  
Large-span bridges of prestressed concrete in Belgium (in French)..... 1345
- PAGE, R. K.  
Performance calculation for jet-propelled aircraft..... 346
- PAGNON, A.  
On the statistical distribution of wind velocities in a given place (in French)..... 1299
- PAILLOUX, H.  
On the equations of motion of ideal fluids (in French)..... 492
- PALASICS, J.  
Effects on performance of changing the division of work between increase of angular velocity and increase of radius of rotation in an impeller..... 1038
- PALME, R. B.  
Contact stresses in the rolling of metals—I..... 1648
- PALMÉN, E.  
On the distribution of temperature and wind in the upper westerlies..... 1432  
An analysis of the wind and temperature distribution in the free atmosphere over North America in a case of approximately westerly flow..... 1435
- PALMER, L. A.  
Lateral earth pressures on flexible retaining walls..... 850
- PANCE, C. D. P.  
Use of vectors in vibration measurement and analysis..... 25
- PANICHKIN, A. P.  
Forces acting on an oscillating profile in a supersonic gas flow (in Russian)..... 160
- PANILIO, F.  
The theory of limit design applied to magnesium-alloy and aluminum-alloy structures..... 85
- PANOFSKY, H. A.  
Radiative cooling in the lower layers of an atmosphere warmer than the ground..... 378
- PANOV, D. V.  
On the stability of a bimetallic membrane on heating (in Russian)..... 620
- PARKER, E. R.  
Causes of cleavage fracture in ship plate—tests of wide notched plates..... 1358  
Effect of residual tension stress on the fatigue strength of mild steel..... 1360  
Behavior of steel under biaxial stress as determined by tests on tubes..... 1630
- PARKUS, H.  
Torsional vibrations of propellers (in German)..... 721  
The disturbed flapping motion of helicopter rotor blades..... 893  
The torsion of slotted hollow shafts (in German)..... 1595
- PARNELLE, G. V.  
Heat transfer by forced convection along a smooth flat surface..... 571
- PARODI, H.  
An approximate relationship between the amplitude of the daily temperature fluctuations and the daily terrestrial radiation upon a horizontal surface (in French)..... 198  
Heating by solar radiation of containers closed by absorbing walls (in French)..... 1303  
On the nonproportionality of the heating load with the temperature rise of the air in a container (in French)..... 1704
- PARSONS, S. R.  
Apparent effect of inlet temperature on adiabatic efficiency of centrifugal compressors..... 1042
- PARTINGTON, J. R.  
Natural philosophy through the eighteenth century and allied topics..... 1707
- PATERSON, S.  
Repeated reflection of shock waves (in French)..... 501  
The hydrodynamic theory of detonation..... 1381  
The reflection of a plane shock wave at a gaseous interface..... 1385
- PATHAK, P. D.  
The Landau velocity in liquid helium II..... 1555
- PAWELKA, E.  
100 exercises in mechanics (in German)..... 1305
- PEABODY, D., JR.  
Thin-shelled domes loaded eccentrically..... 60
- PEARSON, H. A.  
Charts for the determination of wing torsional stiffness required for specified rolling characteristics or aileron reversal speed..... 885  
Derivation of charts for determining the horizontal tail load variation with any elevator motion..... 1024
- PEARSON, S.  
Fatigue of mineral glass under static and cyclic loading..... 841
- PECK, R. B.  
Soil mechanics in engineering practice..... 853
- PEEBLES, G. H.  
A method for calculating airfoil sections from specifications on the pressure distributions..... 313
- PEI, M.  
Hipped plate construction..... 80

- PENMAN, H. L.  
Natural evaporation from open water, bare soil, and grass..... 1297
- PENNER, S. S.  
Qualitative experimental verification of the change of burning rate of rocket powders with radiation path length... 1421
- PERILHOU, P.  
New method of blind landing (in French)..... 1029
- PERRINS, P. J.  
Investigation of effectiveness of air-heating a hollow steel propeller for protection against icing: I. Unpartitioned blades; II. 50 per cent partitioned blades; III. 25 per cent partitioned blades..... 1026
- PERL, W.  
Calculation of compressible flows past aerodynamic shapes by use of the streamline curvature..... 498
- PERRING, W. G. A.  
The design and work of the Farnborough high-speed tunnel..... 1045
- PETERSOHN, E.  
On the power obtainable from wind in sailing (in Swedish)..... 1290
- PETERSON, G. S.  
Orifice discharge coefficients in the viscous-flow range..... 366
- PETERSON, J. P.  
Strength analysis of stiffened beamwebs..... 634
- PEIFFER, A.  
A note on the theory of corrugated diaphragms for pressure-measuring instruments..... 63
- PEENINGER, W.  
Investigations on reductions of friction on wings, in particular by means of boundary-layer suction..... 675
- PELANZ, K.  
Distribution of wheel pressure in unsymmetrical locomotive drives (in German). Axle loading and velocity on curved tracks (in German)..... 22
- PELGER, F.  
The influence of the diameter ratio on the characteristics diagram of the axial compressor..... 1036
- PHILLIPS, W. H.  
Application of spring tabs to elevator controls..... 1020  
Effect of steady rolling on longitudinal and directional stability..... 1158
- PICKERING, W. H.  
Reluctance gages for telemetering strain data..... 45
- PIONE, M.  
Existence and calculation of the solution of a certain problem on the boundary for the equations of elasticity (in Italian)..... 596
- PITCH, F. E.  
The use of the Rossi-Peakes flow tester in measuring the apparent viscosity of plastics at temperatures from 115 to 175 C..... 1351
- PLEMEIER, W. A.  
Ultrasonic propagation in open air..... 590
- PIERCE, H. B.  
Tests of a 45-deg sweptback-wing model in the Langley gust tunnel..... 520
- PIGMAN, G. L.  
External sound levels of aircraft..... 1712
- PIISPANEN, V.  
Theory of formation of metal chips..... 1646
- PILLOW, M. E.  
Mean free path of sound in an auditorium..... 30
- PINES, S.  
Instability analysis and design of an efficiently tapered plate under compressive loading..... 71
- PINNEY, E.  
Aerodynamic forces on a slotted flat plate..... 1011  
Aerodynamic oscillations in suspension bridges..... 1087
- PINSKAYA, Z. B.  
On the influence of elastic building-in of the ends on the stability of compressed rods (in Russian)..... 812
- PIPPARD, A. J. S.  
The critical load of a battened column.. 963
- PLANTEMA, F. J.  
Compression tests on tubes with and without annealed ends..... 971  
Impact loads on seaplanes during landing, with particular reference to the influence of the forward speed..... 989
- PLANTEMA, F. J. (continued)  
Calculation of buckling loads of sandwich plates by means of the energy method (in German)..... 1112
- PLATRIER, C.  
Universal equations of isothermal equilibrium of the most general mediums with a symmetric stress tensor (in French)..... 1602
- PLESSET, M. S.  
Drag in cavitating flow..... 733  
Cavity drag in two and three dimensions..... 1499
- PLOTKIN, T.  
A field instrument for measuring volume and instantaneous flow rate of inspired air..... 1694
- POCHOBRADESKY, B.  
Effect of centrifugal force in axial-flow turbines..... 541
- POGANY, W.  
Rubble as building material (in Polish)..... 986
- POLLMANN, E.  
Temperatures and stresses on hollow blades for gas turbines..... 545
- POLSTER, N. E.  
Application of the sliding-thermocouple method to the determination of temperatures at the interface of a moving bullet and a gun barrel..... 210
- POLUBARINOVA-KOCHINA, P. J.  
On unsteady motion of ground water with a free surface (in Russian)..... 307  
Hydraulic theory of wells in a stratified medium (in Russian)..... 308
- POLYA, G.  
On the fundamental frequency of vibrating membranes and the torsional resistance of elastic rods (in French)..... 12
- POLZIN, M. H.  
Unveil plane-wheel service stresses with laboratory stresscoat analysis..... 240
- PONOMAREFF, A. I.  
Axial-flow compressors for gas turbines..... 1039
- POPE, A.  
On airfoil theory and experiment..... 1527
- POPE, J. A.  
The apparent yield strength of plain carbon steel..... 275  
The change in mechanical properties of mild steel under repeated impact..... 303  
Deformation of metals during single and repeated tensile impact..... 1635
- POPOV, E. P.  
Correlation of tension creep tests with relaxation tests..... 103
- PORITSKY, H.  
Sliding friction of ball bearings of the pivot type..... 208
- POSEY, C. J.  
Characteristics of high-velocity jets.... 1487
- POSSNER, L.  
The mathematical treatment of the influence lines for simple loads (in German)..... 244
- POSTEL, E. E.  
Theoretical pressure distributions for a thin airfoil oscillating in incompressible flow..... 1231
- PRAGER, W.  
Approximations in elasticity based on the concept of function space..... 39  
The general variational principle of the theory of structural stability..... 69  
On the mechanical behavior of metals in the strain-hardening range..... 99  
Stress-strain relations for incompressible plastic materials with strain hardening..... 274  
On the interpretation of combined torsion and tension tests of thin-wall tubes..... 455  
On the use of power laws in stress analysis beyond the elastic range..... 462  
Theory of plastic flow versus theory of plastic deformation..... 1122  
Problem types in the theory of perfectly plastic materials..... 1203  
Plastic buckling of a rectangular plate under edge thrusts..... 1329  
The stress-strain laws of the mathematical theory of plasticity—a survey of recent progress..... 1466
- PRASADA RAO, G. H. S. V.  
Anisotropy in the elastic behaviour of rocks..... 1721
- PREDONZAN, A.  
On the forced vibrations in a system without damping, with two degrees of freedom (in Italian)..... 1588
- PRESS, H.  
A meteorological measure of maximum gust velocities in clouds..... 907
- PRETTYMAN, I. B.  
Method for the absolute measurement of dynamic properties of linear structures at sonic frequencies..... 1133
- PRICE, H. L.  
Turning errors of a monitored directional gyroscope..... 581
- PRIESTLEY, C. H. B.  
Vertical transport of heat by turbulence in the atmosphere..... 177
- PRIGOGINE, I.  
Thermodynamic method of Th. De Donder and of Schottky, Ulich, and Wagner (in French)..... 923  
The stability of azeotropic transformations (in French)..... 924
- PRIM, R.  
Some properties of rotational flow of a perfect gas..... 855
- PRIM, R. C.  
Surface-pressure gradient and shock-front curvature at the edge of a plane ogive with attached shock front..... 1665
- PRIMAKOFF, H.  
Reflection and transmission of sound by thin curved shells..... 35
- PROCOPIU, S.  
Interesting relation between the molecular heat of fusion and the temperature of fusion of chemical compounds (in French)..... 192
- PROETEL, H.  
Model tests and studies for the design of locks utilizing the kinetic energy of the water (in German)..... 901
- PROHASKA, C. W.  
The vertical vibration of ships..... 942  
Residuary stability..... 1288
- PROKHOROV, N.  
Stresses in structural members during welding (in Russian)..... 967
- PROKHOROV, A. M.  
The determination of eigenvalues and eigenfunctions of certain operators by means of a recurrent circuit..... 761
- PROT, M.  
Fatigue test under progressive load (in French)..... 111
- PROTTER, M. H.  
The shape and tension of a light flexible cable in a uniform current..... 7
- PUCKETT, A. E.  
Aerodynamic performance of delta wings at supersonic speeds..... 151
- PUGH, E. M.  
Explosives with lined cavities..... 1300
- PUNGA, F.  
The direction of shear stresses (in German)..... 1190
- PURSER, P. E.  
Preliminary investigation at low speed of down-wash characteristics of small-scale sweptback wings..... 529  
Collection and analysis of hinge-moment data on control-surface tabs..... 696  
Wind-tunnel investigation of effects of unsymmetrical horizontal tail arrangements on power-on static longitudinal stability of a single-engine airplane model..... 879
- PUSHKIN, V. S.  
On the question of heat conduction in solid bodies, III (in Russian)..... 1547
- PUTNAM, A. A.  
An improved method for calculating the dynamic response of flexible airplanes to gusts..... 720
- PYSHKIN, B.  
Double spiral movement of a fluid in a straight channel with semicircular profile (in Russian)..... 1659

Q

- QUARISA, G.  
Backwater curves in prismatic channels (in Italian)..... 552
- QUEIRO, M. J.  
Approximate relations and charts for low-speed stability derivatives of swept wings..... 1007
- QUENEY, P.  
On the theory of cyclones (in French).... 739

- QUINN, J. H., Jr.  
Analysis of the effects of boundary-layer control on the take-off performance characteristics of a liaison-type airplane..... 1156
- QUINTAL, R.  
Seepage networks (in French)..... 1565

## R

- RABOTNOV, Y. N.  
Equilibrium of an elastic medium with aftereffect (in Russian)..... 946
- RACISZ, S. F.  
Wind-tunnel investigation of effects of forward movements of transition on section characteristics of a low-drag airfoil with a 0.24-chord sealed plain aileron..... 1030
- RAITT, R. W.  
Reverberation in the sea..... 1420
- RAKHIMATOLIN, K. A.  
On propagation of cylindrical waves under plastic deformations (torsional impact) (in Russian)..... 976
- RALESTON, S. B.  
A note on the block coefficient of a ship..... 1056
- RAMAMRITHAM, S.  
Stress analysis of noncircular rings for monocoque fuselages..... 451
- RANSOM, J. T.  
Report on the fracture of metals, Parts I, II..... 276
- RASSWEILER, G. M.  
Ultrasonic resonance applied to non-destructive testing..... 110
- RATHBUN, J. C.  
Continuous frame analysis by elastic support action..... 82
- RAUCH, L. L.  
Electronic commutation of strain gages for telemetering..... 413
- RAY, M.  
On a type of nonstationary turbulent wake..... 1520
- REGENSCHKEIT, B.  
Drag reduction by suction of the boundary layer separated behind shock-wave formation at high Mach numbers..... 352
- REGIER, A. A.  
Experiments on drag of revolving disks, cylinders, and streamline rods at high speeds..... 866  
Propeller-loudness charts for light airplanes..... 1187  
Effect of distance on airplane noise..... 1417  
Effect of critical Mach number and flutter on maximum power loading of ducted fans..... 1681
- REHBINDER, P.  
New physicochemical phenomena in the deformation and mechanical treatment of solids..... 280
- REICHARDT, C. H.  
A theory of commercial yarn testing.... 1471
- REID, R. O.  
The equatorial currents of the Eastern Pacific as maintained by the stress of the wind..... 1719
- REID, W. T.  
An investigation of the variation in heat absorption in a pulverized-coal-fired water-cooled steam-boiler furnace, I, II, III, IV..... 1411
- REINHART, F. W.  
Effect of simulated service conditions on plastics during accelerated and two-year weathering tests..... 838
- REISERT, T. D.  
An application of statistical data in the development of gust-load criteria.... 1022
- REISSNER, E.  
On bending of elastic plates..... 59  
Effect of finite span on the air load distributions for oscillating wings—I. Aerodynamic theory of oscillating wings of finite span..... 718  
Effect of finite span on the air load distributions for oscillating wings—II. Methods of calculation and examples of application..... 887  
Finite deflections of sandwich plates.... 1108
- REISSNER, H.  
Systematic analysis of thermal turbojet propulsion..... 191

- RELLICH, F.  
The boundary conditions of Airy's stress function for given displacements at the boundary (in German)..... 1324
- REUYL, D.  
Full-scale free-flight ballistic measurements of guided missiles..... 1691
- REYNOLDS, E. E.  
An investigation of the high-temperature properties of chromium-base alloys at 1350 F..... 471  
Evaluation of two high-carbon precision-cast alloys at 1700 and 1800 F by the rupture test..... 845
- RIABOUCHINSKY, D.  
Some remarks concerning the behavior of aspiration slots (in French)..... 155  
On some fundamental properties of supersonic motions (in French)..... 1667
- RIBAUD, G.  
Influence of dissociation on the adiabatic expansion of a gas mixture at high temperature (in French)..... 185  
A new solution of the Fourier equation (in French)..... 928  
The problem of infinite wall with constant heat flow (in French)..... 929  
Expansions based on a solution of the Fourier equation in the case of an infinite wall (in French)..... 930
- RIBNER, H. S.  
The ring airfoil in nonaxial flow..... 149  
The stability derivatives of low-aspect-ratio triangular wings at subsonic and supersonic speeds..... 695  
Stability derivatives of triangular wings at supersonic speeds..... 1004
- RICHARD, U.  
Stretching of a heavy cable suspended from two fixed anchorages (in Italian)..... 421
- RICHARDSON, E. G.  
The breakup of liquid jets..... 554  
Reinforced concrete wall and column footings..... 1622
- RICHART, F. E.  
Laboratory research on concrete bridge floors..... 630  
The effect of eccentric loading, protective shells, slenderness ratios, and other variables in reinforced concrete columns..... 1119
- RIEHL, H.  
Jet stream in upper troposphere and cyclone formation..... 1296
- RIGHTMIRE, B. G.  
An investigation of fretting corrosion under several conditions of oxidation..... 1126
- RINGLEB, F.  
Some aerodynamic relations for an airfoil in oblique flow..... 515  
Approximate method of determining the pressure distribution of an adiabatic gas flow..... 1241
- RINKERT, A.  
Continuous beams on elastic supports (in Swedish)..... 418
- RISCH, R.  
The calculation of molecular vacuum pumps (in German)..... 1684
- RITTER, W. K.  
Effects on performance of changing the division of work between increase of angular velocity and increase of radius of rotation in an impeller..... 1038  
Apparent effect of inlet temperature on adiabatic efficiency of centrifugal compressors..... 1042
- RIVLIN, R. S.  
Torsion of a rubber cylinder..... 36
- RIZ, P. M.  
Theory of elasticity for large deformations, exceeding the limit of proportionality (in Russian)..... 945  
On the asymptotic integration of the equations of the theory of elasticity with applications to a plate and a disk of variable thickness (in Russian).... 1314
- ROBB, A. M.  
An examination of the records of the Greyhound experiments..... 1061
- ROBBE, O.  
Figures of equal thickness as defects in grinding of cylindrical pieces (in Dutch)..... 1645
- ROBERTS, H.  
Rolling performance of aircraft..... 1254
- ROBERTS, M. H.  
Measurement of Young's modulus at high temperatures..... 1636
- ROBINSON, J. R.  
The compensation of arches (in French). 1347

- RODERICK, J. W.  
Theory of plasticity—elements of simple theory..... 1632
- ROGOWSKY, Z. M.  
Mechanical principles of the screw extrusion machine..... 665
- ROHSENOW, W. M.  
Determination of the thermal correction for a single-shielded thermocouple..... 193
- ROJANSKY, V.  
Camptograms for beams in compression. Gyrograms for simple harmonic systems subjected to external forces..... 261
- ROMANI, L.  
On the statistical distribution of wind velocities in a given place (in French). 1299
- ROMANOWSKI, A.  
Matching of angular speeds of rotating shafts. Experiments (in German).... 1445
- RONDEEL, J. H.  
Compression tests on tubes with and without annealed ends..... 971
- ROOF, W. P.  
Fracturing of metals..... 1124
- ROS, M.  
Interpretation and value of tests and experience with reinforced concrete structures in Switzerland 1924-1947 (in German)..... 822  
Fatigue of metals (in French)..... 829
- ROSENBAUM, R.  
A note on flight flutter testing..... 1276
- ROSENFELD, S. J.  
Analytical and experimental investigation of bolted joints..... 266
- ROSENTHAL, D.  
Recent contributions to the x-ray method in the field of stress analysis.. 237
- ROSOVSKI, M. I.  
Bending of an actual heated cantilever with nonuniform temperature distribution (in Russian)..... 645  
Application of integrodifferential equations to dynamic problems of the theory of elasticity in case of aftereffect (in Russian)..... 941  
Application of integral and integrodifferential equations to the study of deformation processes of real materials (in Russian)..... 1313  
Plane deformation with elastic aftereffect and thermal stress (in Russian).. 1318
- ROSS, H. F.  
Application of tables for helical compression and extension spring design.. 58
- ROSS, R. D.  
An electrical computer for the solution of shear-lag and bolted-joint problems.. 604
- ROSSBY, C. G.  
Notes on the distribution of energy and frequency in surface waves..... 773
- ROSSER, J. B.  
Mathematical theory of rocket flight... 912
- ROSSI, P. F.  
Wind-tunnel investigation of the effect of power and flaps on the static longitudinal stability characteristics of a single-engine low-wing airplane model. 873
- ROTH, E.  
Critical remarks on the method of determination of the ballistic density of air according to S. Dufrenoy and O. von Eberhard (in German)..... 562  
The effect of the wind on the normal trajectory (in German)..... 915
- ROTH, F. L.  
Strain test for evaluation of rubber compounds..... 1472  
Strain tester for rubber..... 1474
- ROTHWELL, P.  
Calculation of sound rays in the atmosphere..... 781
- ROTT, N.  
Investigations of compression shocks and boundary layers in gases moving at high speed..... 335
- ROUSE, H.  
Gravitational diffusion from a boundary source in two-dimensional flow..... 388  
Cavitation and pressure distribution... 1486  
Fundamental aspects of cavitation.... 1489
- ROUSSO, M. D.  
Experimental investigation of the jet-boundary constriction correction for a model spanning a closed circular tunnel..... 1046
- ROVINSKI, B. M.  
Plastic deformation and the lattice parameter (in Russian)..... 650



- ROZOVSKY, N.  
Plans of moments and plans of moment ratios of regular toothed-gear mechanisms..... 391
- RUBINOW, S. I.  
Theoretical study of air forces on an oscillating or steady thin wing in a supersonic main stream..... 343  
Flutter and oscillating air-force calculations for an airfoil in a two-dimensional supersonic flow..... 719  
On the flow behind curved shocks..... 1391
- REDMOSE, H. W.  
Airplane quieting: I—Measurement of sound levels in flight..... 32  
Sound control in airplanes..... 225
- REDNICK, I.  
The propagation of an acoustic wave along a boundary..... 1182  
Fluctuations in intensity of an acoustic wave transmitted through a turbulent heated lamina..... 1708
- REDNICK, P.  
Momentum relations in propulsive ducts..... 145
- RUGGERI, R. S.  
Investigation of the penetration of an air jet directed perpendicularly to an air stream..... 1077
- RUKHADZE, A. K.  
Deformation of a naturally twisted rod (in Russian)..... 243  
Influence of transverse shear on the bending of a bar (in Russian)..... 419
- RYSCHEL, J. F.  
Pressure-distribution measurements on the rotating blades of a single-stage axial-flow compressor..... 725
- RYNAN, R. A.  
Empirical method for frequency compensation of the hot-wire anemometer..... 551
- RYNAN, H. L.  
Experimental investigation of the effects of concentrated weights on flutter characteristics of a straight cantilever wing..... 888
- RUSSELL, H. W.  
Fatigue strength and related characteristics of aircraft joints. II. Fatigue characteristics of sheet and riveted joints of 0.040-in. 24S-T, 75S-T, and R303-T275 aluminum alloys..... 624
- RYLEVSKY, S. N.  
Noise analysis of a moving airplane (in Russian)..... 1095
- S**
- SACERDOTE, G. G.  
Determination of the parameters of sound propagation in absorbent materials (in Italian)..... 1096  
On the determination of characteristic parameters of an acoustic impedance (in Italian)..... 1709
- SACHS, G.  
Nondestructive measurement of residual and enforced stresses by means of x-ray diffraction..... 44  
Note on the tightness of expanded tube joints..... 265  
The flow of metals through tools of circular contour..... 304  
Strength and failure characteristics of thin circular membranes..... 653  
Experimentation on tube drawing with a moving mandrel..... 666  
Comparison of various structural alloy steels by means of the static notch-bar tensile test..... 1365  
Plastic flow characteristics of aluminum-alloy plate..... 1638
- SACKMANN, L. A.  
On the transition region of flow through pipes (in French)..... 1236  
On transitions in pipe flows. Theory of the dispersion of characteristics (in French)..... 1279
- SADOFF, M.  
Measurements of the pressure distribution on the horizontal tail surface of a typical propeller-driven pursuit airplane in flight—III. Tail loads in abrupt pull-up push-down maneuvers..... 711
- SADOVSKY, M. A.  
Stress concentration around an ellipsoidal cavity in an infinite body under arbitrary plane stress perpendicular to the axis of revolution of cavity..... 788
- SAHAROV, I. E.  
Deflection of a wedge-shaped built-in plate under the action of an arbitrary load (in Russian)..... 1610
- SAIBEL, E.  
Report on the fracture of metals, Parts I, II..... 276  
Some problems in unstable plastic flow under biaxial tension..... 1350  
A thermodynamic theory of the fracture of metals..... 1359
- SAKMANN, B. W.  
An investigation of fretting corrosion under several conditions of oxidation..... 1126
- SALCEANU, C.  
New method for measuring the viscosity of metals (in French)..... 1131  
Experiment concerning elastic homogeneity of metals (in French)..... 1363
- SALEME, E. M.  
Three-dimensional photoelastic analysis by scattered light..... 1191
- SAMARAS, D. G.  
Gas dynamic treatment of exothermic and endothermic discontinuities..... 1249
- SANDORFF, P. E.  
Bending rigidity and column strength of thin sections..... 619
- SÄNGER, R.  
Critical remarks on the method of determination of the ballistic density of air according to S. Dufrénois and O. von Eberhard (in German)..... 562  
Conversion of the altitude of a gun's location to the range-table altitude (in German)..... 913  
The effect of the wind on the normal trajectory (in German)..... 915
- SARGENT, R. F.  
Shock-wave and boundary-layer phenomena near a flat surface..... 1380
- SATTERFIELD, C. N.  
Generalized thermodynamics of high-temperature combustion..... 1407
- SAUER, R.  
Method of characteristics for three-dimensional axially symmetrical supersonic flows..... 491  
The method of characteristics for the one-dimensional unsteady flow of a gas..... 1252  
General characteristics of the flow through nozzles at near critical speeds..... 1507
- SAUNDERS, H. E.  
The multiple-skeg stern for ships..... 1057
- SAVAGE, W. F.  
State of stress in arc welds made under transverse restraint..... 1116
- SAXTON, H. L.  
Surface reflection of short supersonic pulses in the ocean..... 592
- SCANLAN, R. H.  
An analytical study of the landing shock effect on an elastic airplane..... 1083  
A note on transverse bending of beams having both translating and rotating mass elements..... 1178  
A note on flight flutter testing..... 1270
- SCATCHARD, G.  
Thermodynamic properties—saturated liquid and vapor of ammonia-water mixtures..... 568
- SCHAAF, S. A.  
On the superposition of a heat source and contact resistance..... 200  
Zonal combustion in tubes..... 1515
- SCHADE, T.  
The oscillating circular airfoil on the basis of potential theory..... 538
- SCHAEFER, H.  
Machmeters for high-speed flight research..... 1404
- SCHAEFER, M.  
Remarks on the work: 'Two boundary-value problems in the theory of hyperbolic partial differential equations of the second order with applications to supersonic gas flows,' by F. Frankl and R. Aleksyiva..... 1147  
Comparison of the stream filament theory from gas dynamics with the theory of flows with axial symmetry..... 1245  
Propagation of a two-dimensional irrotational supersonic flow along a wall..... 1250  
Formation of envelopes of Mach waves on a tangentially struck blade..... 1387
- SCHAEVITZ, H.  
The linear variable differential transformer..... 47
- SCHÄFER, M.  
Equations for adiabatic but rotational steady gas flows without friction..... 747
- SCHAPIRO, L.  
Stress-notch sensitivity with eccentric holes..... 468
- SCHEDROV, V. S.  
Wear of a contact surface by compaction (in Russian)..... 1293
- SCHER, S. H.  
Effect of 40-deg sweepback on the spin and recovery characteristics of a 1/25-scale model of a typical fighter-type airplane as determined by free-spinning tunnel tests..... 999
- SCHERMAN, D. J.  
Solution of problems in theory of elasticity for doubly connected regions (in French)..... 785
- SCHERRER, R.  
The effect of aerodynamic heating and heat transfer on the surface temperature of a body of revolution in steady supersonic flight..... 493
- SCHIEFER, H. F.  
Measurement and elimination of inertia effects in textile-testing equipment by means of electric strain gages..... 1081
- SCHIFFER, M.  
On Bergman's integration method in two-dimensional compressible fluid flow..... 1506
- SCHILDCROUT, M.  
Critical stress of thin-walled cylinders in axial compression..... 438  
Critical combinations of torsion and direct axial stress for thin-walled cylinders..... 439  
Critical shear stress of long plates with transverse curvature..... 440  
Critical combinations of shear and longitudinal direct stress for long plates with transverse curvature..... 441  
Critical shear stress of curved rectangular panels..... 442  
Critical stress of thin-walled cylinders in torsion..... 809  
Critical axial compressive stress of a curved rectangular panel with a central chordwise effect..... 1462
- SCHILLING, H. K.  
Ultrasonic propagation in open air..... 590
- SCHLAG, A.  
Elastic behavior of pipes subjected to thermal strains: two-dimensional case (in French)..... 248  
Contribution to the normalization of Venturi tubes (in French)..... 550
- SCHMIDT, F. H.  
An elementary theory of the land and sea-breeze circulation..... 380
- SCHMIEDEN, C.  
Tunnel corrections for propellers and spinning wings in a free jet and in a closed tunnel of circular cross section (in German)..... 1405
- SCHNAIDT, F.  
On the representation of entropy of non-saturated air (in German)..... 1723
- SCHNEITER, L. E.  
Investigation at low speed of the longitudinal stability characteristics of a 60-deg sweepback tapered low-drag wing..... 1258  
Low-speed wind-tunnel investigation of various plain-spoiler configurations for lateral control on a 42-deg sweepback wing..... 1267  
Approximate relations for hinge-moment parameters of control surfaces on swept wings at low Mach numbers..... 1678
- SCHOEN, J.  
Flow of liquids through rotating hollow shafts (in German)..... 1497
- SCHOENBORN, E. M.  
Effect of local boiling and air entrainment on temperatures of liquid-cooled cylinders..... 926
- SCHOENHERR, K. E.  
Cavitation, the limiting factor in marine propulsion..... 1654
- SCHOLES, J. F. M.  
Ducted fans: a nomogram method of analysis..... 356
- SCHOLTE, J. G.  
On Rayleigh waves in viscoelastic media..... 219
- SCHÖNFELD, J. C.  
An electric model for the experimental determination of the deformation of a statically indeterminate frame (in Dutch)..... 271
- SCHÖNHÖFER, R.  
Direct calculation of strut cross sections and their optimum shapes (in German)..... 616

- SCHOVER, D. S.  
A direct coupled amplifier for recording dynamic strain..... 1605
- SCHROETER, A.  
Earth support according to the lattice-wall principle (in German)..... 668
- SCHUBAUER, G. B.  
Laminar boundary-layer oscillations and stability of laminar flow..... 125  
Laminar boundary-layer oscillations and transition on a flat plate..... 129
- SCHUELER, L. B.  
An investigation of the variation in heat absorption in a pulverized-coal-fired water-cooled steam-boiler furnace, I, II, III, IV..... 1411
- SCHUETTE, E. H.  
Data on optimum length, shear strength, and tensile strength of age-hardened 17S-T machine-countersunk rivets in 75S-T sheet..... 448  
Prediction and reduction to minimum properties of plate compressive curves. Buckling of curved sheet in compression and its relation to the secant modulus..... 807  
808
- SCHUETTLER, A.  
Charts for determining the characteristics of sharp-nose airfoils in two-dimensional flow at supersonic speeds..... 511
- SCHWARZ, N.  
On the theory of heat transfer from a wire in an electric field..... 932
- SCIMELE, E.  
On the validity of Thoma's rule for surge tanks at hydroelectric plants (in Italian)..... 1050
- SCORAH, R. L.  
Heat transfer to water boiling under pressure..... 927
- SCOTT, H.  
Precipitation-hardened alloys for gas-turbine service. I—Metallurgical considerations. II—Design and application data..... 117
- SCOTT, J. F.  
Natural philosophy through the eighteenth century and allied topics..... 1707
- SCOTT, R. A.  
Attenuation of sound in lined air ducts..... 776
- SCRIBAN, A.  
Heat transfer and hydraulic losses in needle-type gas heaters (in Russian)..... 386
- SEACORD, C. L., JR.  
The effect of mass distribution on the lateral stability and control characteristics of an airplane as determined by tests of a model in the free-flight tunnel..... 712
- SEARS, W. R.  
A second note on compressible flow about bodies of revolution..... 141  
The boundary layer of yawed cylinders..... 483  
On projectiles of minimum wave drag..... 742  
A new treatment of the lifting-line wing theory, with applications to rigid and elastic wings..... 1658
- SEDOV, L. I.  
On the theory of the unsteady motion of an airfoil..... 309  
Scale effect and optimum relations for sea surface planing..... 904
- SEGER, R. J.  
Surface waves from an underwater explosion..... 916
- SEIDE, P.  
Compressive buckling of simply supported plates with transverse stiffeners..... 815  
The buckling of a column on equally spaced deflectional and rotational springs..... 960
- SEIFERT, H.  
The hypergeometric differential equations of gas dynamics (in German)..... 1662
- SEIGLE, L.  
Mechanical properties of metals at low temperatures; a survey..... 843
- SEITZ, F.  
Proposed experiments for further study of the mechanism of plastic deformation..... 92
- SEIWELL, H. R.  
Evaluation of sea-surface roughness from underwater-pressure recordings..... 1434
- SEKERA, Z.  
Helmholtz waves in a linear temperature field with vertical wind shear..... 1179
- SEKERZHENKOVICH, J. I.  
On the theory of stationary waves of finite amplitude on the surface of a heavy fluid (in Russian)..... 586
- SELBERG, A.  
Suspension bridges with cables fastened to the stiffening girders at the center of the bridge..... 1338  
Buckling of composite columns of wood (in Swedish)..... 1615
- SELBO, M. L.  
Results of accelerated tests and long-term exposures on glue joints in laminated beams..... 982
- SEMAR, H. W.  
Marine engines—mechanical reduction gears..... 1058
- SEN, B.  
Direct determination of stresses in thin elastic plates having cavities of different shapes..... 1596
- SERREYS, M.  
Influence of the nature of the fuel mixture on the velocity of gases through a nozzle (in French)..... 385
- SETH, B. R.  
Bending of clamped rectilinear plates. Transverse vibrations of rectilinear plates..... 426  
1584
- SEWALL, J. L.  
Experimental investigation of the effects of concentrated weights on flutter characteristics of a straight cantilever wing..... 888
- SHAFFER, P. A., JR.  
Drag in cavitating flow..... 733  
Cavity drag in two and three dimensions..... 1499
- SHANKS, R. E.  
Lateral stability and control characteristics of a free-flying model having an unswept wing with an aspect ratio of 2..... 1673
- SHANLEY, F. R.  
Inelastic column theory..... 72
- SHAPIRO, A. H.  
Method of characteristics for two-dimensional supersonic flow—graphical and numerical procedures..... 138  
The mechanics and thermodynamics of steady one-dimensional gas flow..... 332  
Tables for numerical solution of problems in compressible gas flow with energy effects..... 995  
Friction coefficients in the inlet length of smooth round tubes..... 1488
- SHAPIRO, G. S.  
Stress functions in an arbitrary system of curvilinear co-ordinates (in French)..... 233  
Axially symmetrical deformations of an ellipsoid of revolution (in Russian)..... 1188
- SHAW, F. S.  
Plywood panels in end compression: flat panels with grain at various angles to direction of loading..... 263
- SHAW, M. C.  
An analysis of the parallel-surface thrust bearing..... 176  
Mechanical activation—a newly developed chemical process..... 849  
Measurement of piston-ring radial-pressure distribution..... 950  
The hydrosphere—a new hydrodynamic bearing..... 1294
- SHEN, S. F.  
Hypersonic flow over a slender cone..... 1511
- SHEPLER, P. R.  
Correlated brittle fracture studies of notched bars and simple structures..... 287  
Explosive impact tests..... 839
- SHERMAN, D. I.  
On the Dirichlet and Neuman problems in the theory of steady oscillations (in Russian)..... 395
- SHERMAN, S.  
A note on stability calculations and time lag..... 21
- SHERRATT, S.  
The determination of flame speeds in gaseous mixtures..... 1510
- SHEVANDIN, E. M.  
The influence of size on the brittle strength of steel..... 87  
Effect of notches upon cold brittleness of steel—II. Calculation of cold brittleness for parts having notches (in Russian)..... 461
- SHEVCHENKO, K. N.  
The elastoplastic state under a concentrated load applied to a half plane (in Russian)..... 1468  
Concentrated load applied to a half plane (in Russian)..... 1633
- SHIFFMAN, M.  
The flow of an ideal incompressible fluid about a lens..... 123  
On free boundaries of an ideal fluid..... 861
- SHIMOYAMA, Y.  
Tests of cascades of airfoils for retarded flow..... 542
- SHING, L.  
A survey of published work on the deflection of and stress in flat plates subject to hydrostatic loading..... 797
- SHU, S. S.  
Aerodynamics of the oscillating airfoil in compressible flow..... 1035
- SHULTZ-GRUNOW, F.  
Gas-dynamic investigations of the pulse-jet tube. Parts I and II..... 871
- SHUTTLEWORTH, R.  
The spreading of a liquid over a rough solid..... 1493
- SIBBITT, W. L.  
Review of data on dynamic viscosity of water and superheated steam..... 1302
- SIBERT, H. W.  
Approximations involved in the linear differential equation for compressible flow..... 504
- SIDEBOTTOM, O.  
The effect of nonuniform distribution of stress on the yield strength of steel..... 646
- SIEGEL, S.  
Limits of precision in the determination of lattice parameters and stresses by the Debye-Scherrer method..... 603
- SISS, C. P.  
Composite construction for I-beam bridges..... 632
- SIESTRUCK, R.  
Approximate determination of the corrections due to induced velocities in axial machines with supersonic relative speeds (in French)..... 1378  
On the analysis of coaxial contrarotating propellers and their condition of optimum (in French)..... 1401
- SILBERSTEIN, J. P. O.  
Plywood panels in end compression: curved panels with grain at various angles to the generators..... 238  
Plywood panels in end compression: flat panels with grain at various angles to direction of loading..... 263
- SILLER, I.  
Shell-side coefficients of heat transfer in a baffled heat exchanger..... 569
- SILVERMAN, L.  
A field instrument for measuring volume and instantaneous flow rate of inspired air..... 1694
- SIMARD, R.  
Hydrogen peroxide as a source of power..... 918
- SIMON, M. T.  
The mechanism of corrosion fatigue of mild steel..... 651
- SIMON, H. A.  
The axioms of Newtonian mechanics..... 1580
- SIMONOV, L. A.  
Calculation of an airfoil in a flow and mapping of an airfoil according to a distribution of velocities over its surface (in Russian)..... 1021
- SIMPKINSON, S.  
Effect of centrifugal force on the elastic curve of a vibrating cantilever beam..... 401
- SIMPSON, F. W.  
Absorption measurements of sound in sea water..... 1713
- SIVELLS, J. C.  
Method for calculating wing characteristics by lifting line theory using nonlinear section lift data..... 1001
- SIVIAN, L. J.  
High-frequency absorption in air and other gases..... 31
- SKEMPTON, A. W.  
A study of the geotechnical properties of some postglacial clays..... 1225
- SKRAMSTAD, H. K.  
Laminar boundary-layer oscillations and stability of laminar flow..... 125  
Laminar boundary-layer oscillations and transition on a flat plate..... 129
- SLEEPER, H. P., JR.  
Acoustical materials and acoustical treatments for aircraft..... 406
- SLUDER, L.  
An application of lifting-surface theory to the prediction of angle-of-attack hinge-moment parameters for aspect ratio 4.5 wings..... 513  
An application of Falkner's surface-loading method to predictions of hinge-moment parameters for sweptback wings..... 699



- SMILG, B.  
An engineering evaluation of flutter and other aeroelastic problems at transonic and supersonic speeds..... 1269
- SMITH, C. B.  
Stress distribution in a beam of orthotropic material subjected to a concentrated load..... 1103
- SMITH, C. L.  
Thermal hardening of cadmium crystals..... 91
- SMITH, C. R.  
Stresses in cylindrical semimonocoque open beams..... 53
- SMITH, C. S.  
Nondestructive measurement of residual and enforced stresses by means of x-ray diffraction..... 44
- SMITH, E. C.  
Natural philosophy through the eighteenth century and allied topics..... 1707
- SMITH, E. F.  
An improved low-temperature brittleness test..... 1634
- SMITH, F. C.  
Reinforcement of a small circular hole in a plane sheet under tension..... 1110
- SMITH, G. P.  
Influence of crystal plane and surrounding atmosphere on chemical activities of single crystals of metals..... 1165  
Influence of crystal plane and surrounding atmosphere on some types of friction and wear between metals..... 1725
- SMITH, G. V.  
A study of the properties of 0.5 per cent chromium—0.5 per cent molybdenum pipe steel..... 1478
- SMITH, J. E.  
High-speed testing in the Southern California Co-operative Wind Tunnel..... 898
- SMITH, M. C.  
Ultrasonic absorption in water in the temperature range of 0 to 80 C..... 1553
- SMITH, N. F.  
Numerical evaluation of mass-flow coefficient and associated parameters from wake-survey equations..... 686
- SMITH, R. C. T.  
Plywood panels in end compression: flat panels with grain at various angles to direction of loading..... 263
- SMITH, R. D.  
Friction coefficients in the inlet length of smooth round tubes..... 1488
- SMITH, W. H.  
Lateral earth pressures on flexible retaining walls..... 850
- SMITKO, N. K.  
On the theory of strength of materials with regard to their structure (in Russian)..... 1349
- SNOW, R. N.  
Aerodynamics of thin quadrilateral wings at supersonic speeds..... 536
- SOETE, W.  
Determination of residual stresses in some welded structures (in French)..... 965
- SOLOVIOV, A. P.  
On the elastic-plastic state of a membrane (in Russian)..... 1209
- SOLOVIOV, L.  
Experimental investigation of the temperature and speed dependence of the resistance to plastic deformation in metals and amorphous bodies (in Russian)..... 640  
Influence of the degree of deformation on the dependence of stress upon speed (in Russian)..... 652
- SOLOVSKI, V. V.  
Problems in statics of plastic and granulated materials (in Russian)..... 463  
Plastic stressed state of rotating disks (in Russian)..... 798  
Propagation of cylindrical shear waves in an elastic-viscous-plastic medium (in Russian)..... 1181  
On a form of representation of stress components in the theory of plasticity (in Russian)..... 1352  
Limiting equilibrium of rocks in conditions of plane stress (in Russian)..... 1715
- SOLBERG, H. L.  
Review of data on dynamic viscosity of water and superheated steam..... 1302
- SPANNHAKKE, W.  
Analysis of modern propeller-pump design..... 1685
- SPARKES, F. N.  
The deterioration of concrete: Some factors affecting the resistance of concrete to frost action (in French)..... 1371
- SPEAR, M. F.  
Wind-tunnel investigation of effects of unsymmetrical horizontal tail arrangements on power-on static longitudinal stability of a single-engine airplane model..... 879
- SPEARMAN, M. L.  
Preliminary investigation at low speed of down-wash characteristics of small-scale sweptback wings..... 529
- SPENCER, D. C.  
The flow of an ideal incompressible fluid about a lens..... 123
- SPENCER-JONES, H.  
Natural philosophy through the eighteenth century and allied topics..... 1707
- SPELTING, E.  
Calculation of springs for railway cars (in German)..... 1586
- SPILLER, H.  
Recent methods of calculating continuous beams and frames (in German)..... 267
- SPINK, L. K.  
Coefficients of discharge of sharp-edged concentric orifices in commercial 2-in., 3-in., and 4-in. pipes for low Reynolds numbers using flange taps..... 169
- SPREITER, J. R.  
The rolling moment due to sideslip of triangular, trapezoidal, and related planforms in supersonic flow..... 1679
- SPROULE, D. O.  
The detection of cracks in steel by means of supersonic waves..... 105
- SQUIRE, H. B.  
Reconsideration of the theory of free turbulence..... 990
- SRETENSKY, L. N.  
On the diffusion of a vortex pair (in Russian)..... 671
- STACK, J.  
Characteristics of low-aspect-ratio wings at supercritical Mach numbers..... 1397
- STAFF OF FOREST PRODUCTS LABORATORY  
Methods for conducting mechanical tests of sandwich constructions at normal temperature..... 1364
- STAGE, E.  
Tests with reduced-scale models for hydraulic turbines..... 162
- STAGNI, E.  
A numerical method to determine critical loads in straight pin-ended members (in Italian)..... 259  
Determination of critical loads beyond the elastic limit in straight pin-ended metal structures (in Italian)..... 260  
A numerical method for the determination of the critical load in straight columns (in Italian)..... 622
- STALDER, J. R.  
Heat transfer to bodies traveling at high speed in the upper atmosphere..... 1304
- STALEY, H. R.  
Thin-shelled domes loaded eccentrically..... 60
- STAMM, G.  
Investigations of pressure distribution on fast flying bodies..... 382
- STANGE, A. H.  
Perforated cover plates for steel columns: summary of compressive properties..... 1200
- STANGE, K.  
On the motion of a stable, almost vertical symmetric top (in German)..... 1582
- STANITZ, J. D.  
Note on the simple ram air intake preceded by normal shock in supersonic flight..... 1666
- STANYUKOVICH, K. P.  
The flow of detonation products in the case of an 'inclined' detonation wave... Some exact solutions of equations of gas dynamics for centrally symmetrical flows (in Russian)..... 1384
- STARR, V. P.  
Momentum and energy integrals for gravity waves of finite height..... 910  
A momentum integral for surface waves in deep water..... 911  
On the production of kinetic energy in the atmosphere..... 1574
- STATHAM, L.  
A pickup for the measurement of quasi-static angular acceleration..... 1174
- STEIN, M.  
Buckling stresses of simply supported rectangular flat plates in shear..... 436  
Critical combinations of shear and direct stress for simply supported rectangular flat plates..... 437
- STEIN, M. (continued)  
Critical stress of thin-walled cylinders in axial compression..... 438  
Critical combinations of torsion and direct axial stress for thin-walled cylinders..... 439  
Critical shear stress of long plates with transverse curvature..... 440  
Critical combinations of shear and longitudinal direct stress for long plates with transverse curvature..... 441  
Critical shear stress of curved rectangular panels..... 442  
Critical stress of thin-walled cylinders in torsion..... 809  
Buckling in shear of continuous flat plates..... 962
- STEINMETZ, C. P.  
A further investigation of the meteorological conditions conducive to aircraft icing..... 706
- STEPANOFF, A. J.  
Centrifugal and axial-flow pumps: theory, design, and application..... 1531
- STERNBERG, E.  
Stress concentration around an ellipsoidal cavity in an infinite body under arbitrary plane stress perpendicular to the axis of revolution of cavity..... 788
- STERNFIELD, L.  
Effect of product of inertia on lateral stability..... 690  
Some considerations of the lateral stability of high-speed aircraft..... 1019  
A theoretical investigation of longitudinal stability of airplanes with free controls including effect of friction in control system..... 1023  
Dynamic lateral stability as influenced by mass distribution..... 1255  
A theoretical investigation of the effect of yawing moment due to rolling on lateral oscillatory stability..... 1677
- STEVENS, J. E.  
Effect of finite span on the air load distributions for oscillating wings—II. Methods of calculation and examples of application..... 887
- STEVENS, V. L. JR.  
Prediction of load distribution and its effect on aerodynamic characteristics at subsonic speeds for wings of arbitrary planform..... 1260
- STEWART, H. J.  
Aerodynamic performance of delta wings at supersonic speeds..... 151
- STEWART, R. W.  
Analysis of frames with elastic joints..... 272
- STEWART, W.  
Flight testing of helicopters..... 1164
- STICKLE, G. W.  
Charts for determining the characteristics of sharp-nose airfoils in two-dimensional flow at supersonic speeds..... 511
- STIEHLER, R. D.  
Strain test for evaluation of rubber compounds..... 1472
- STILES, W. B.  
Bending of clamped plates..... 62
- STOECKICHT, W. G.  
Importance of design factors for marine reduction gears..... 1470
- STOKER, J. J.  
Surface waves in water of variable depth..... 179
- STONE, A. H.  
On supersonic flow past a slightly yawing cone..... 993
- STONE, J. M.  
Load-carrying capacity of journal bearings..... 375
- STONE, R. W., JR.  
Effect of horizontal tail position on the hinge moments of an unbalanced rudder in attitudes simulating spin conditions..... 1009
- STONER, R. G.  
The attenuation of spherical shock waves in air..... 1423
- STOPOCHENKO, E. V.  
Influence of external friction upon the formation of shock waves in cylindrical pipes (in Russian)..... 872
- STOUT, R. D.  
Effect of welding on ductility and notch sensitivity of some ship steels..... 466  
The meaning and measurement of transition temperature..... 1129
- STOWELL, E. Z.  
An evaluation of some approximate methods of computing landing stresses in aircraft..... 775  
A unified theory of plastic buckling of columns and plates..... 805



STOWELL, E. Z. ( <i>continued</i> )	
Critical shear stress of an infinitely long plate in the plastic region.....	1331
STRANG, C. D., JR.	
Measurement of piston-ring radial-pressure distribution.....	950
The hydrosphere—a new hydrodynamic bearing.....	1294
STRASBERG, M.	
Radiation from a diaphragm struck periodically by a light mass.....	1554
STRAUB, H.	
The settling of sandy soils of variable density (in German).....	669
STURNER, F. W.	
Response of damped elastic systems to transient disturbances.....	1088
STULEN, F. B.	
A new fatigue strength-damping criterion for the design of resonant members.....	104
STURM, R. G.	
Stability of thin cylindrical shells in torsion.....	66
STÜSSI, F.	
Elements of wood engineering (in German).....	659
Composite beams (in German).....	1198
SULZER, H.	
Bursting test with a ball.....	295
SUMMERFIELD, M.	
The problem of escape from the earth by rocket.....	153
SUN, C. P.	
Effect of welding on ductility and notch sensitivity of some ship steels.....	466
SUPINO, G.	
On the theory of elastic plates (in Italian).....	952
SURINE, O. W.	
Effect of combustor-inlet conditions on combustion in turbojet engines.....	384
SUSSKOLZ, B.	
The response of a system with a single degree of freedom to a blast load.....	774
SUTTON, C. S.	
Effect of local boiling and air entrainment on temperatures of liquid-cooled cylinders.....	926
SUTTON, O. G.	
The theoretical distribution of air-borne pollution from factory chimneys.....	740
The problem of diffusion in the lower atmosphere.....	909
Convection in the atmosphere near the ground.....	1433
SYKLO, V. A.	
Plane waves and Rayleigh waves in an anisotropic medium (in Russian).....	1090
SVERDRUP, H. U.	
Wind-driven currents in a baroclinic ocean; with application to the equatorial currents of the Eastern Pacific.....	376
SWAINGER, K. H.	
Large strains and displacements in stress-strain problems.....	232
Minimizing zero drift in electrical strain-gage bridges.....	239
Large displacements with small strains in loaded structures.....	601
A new criterion of yielding in metals.....	644
Stress-strain compatibility in greatly deformed engineering metals.....	975
The measurement and interpretation of postyield strains.....	980
A new criterion of yielding in metals due to complex stresses.....	1123
Strain energy in greatly deformed elastic or inelastic anisotropic engineering metals.....	1128
SWANSON, R. S.	
Discussion of 'Progress in dynamic stability and control research,' by William F. Milliken, Jr.....	1159
Lifting-surface-theory aspect-ratio corrections to the lift and hinge-moment parameters for full-span elevators on horizontal tail surfaces.....	1672
SWEBERG, H. H.	
Investigation of some factors affecting comparisons of wind-tunnel and flight measurements of maximum lift coefficients for a fighter-type airplane.....	1048
SWIFT, H. W.	
Length changes in metals under torsional over-strain.....	642
SWIKERT, M. A.	
Friction at high sliding velocities.....	577
SWINBANK, W. C.	
Vertical transport of heat by turbulence in the atmosphere.....	177

SWINDELLS, J. F.	
Measurements of combined frictional and thermal behavior in journal-bearing lubrication.....	905
SYNGE, J. L.	
Approximations in elasticity based on the concept of function space.....	39
The method of the hypercircle in elasticity when body forces are present.....	786
SZANSER, J.	
Three-moment equation method (in Polish).....	1344

## T

TABOR, D.	
A simple theory of static and dynamic hardness.....	654
TAGOOONOVA, T. V.	
Plastic deformation and the lattice parameter (in Russian).....	650
TAK, W.	
Measuring reverberation time by the method of exponentially increasing amplification.....	1183
TALKIN, H. W.	
Charts showing relations among primary aerodynamic variables for helicopter performance estimation.....	705
TAMBURELLO, V.	
Wind-tunnel investigation of the effect of power and flaps on the static lateral characteristics of a single-engine low-wing airplane model.....	876
Investigation of effect of span, spanwise location, and chordwise location of spoilers on lateral-control characteristics of a tapered wing.....	1005
TAN, E. K.	
Stability of soil slopes.....	121
TARGOFF, W. P.	
The associated matrices of bending and coupled bending-torsion vibrations.....	27
TARPLEY, H. I.	
An instrument to measure servomechanism performance.....	9
TAUB, A. H.	
Refraction of plane shock waves.....	334
Relativistic Rankine-Hugoniot equations.....	1248
TAYLOR, C. F.	
The effect of fuel composition, compression pressure, and fuel-air ratio on the compression-ignition characteristics of several fuels.....	746
TAYLOR, D. W.	
Fundamentals of soil mechanics.....	1428
TAYLOR, E. S.	
The effect of fuel composition, compression pressure, and fuel-air ratio on the compression-ignition characteristics of several fuels.....	746
TAYLOR, F. S.	
Natural philosophy through the eighteenth century and allied topics.....	1707
TAYLOR, G.	
A connection between the criterion of yield and the strain ratio relationship in plastic solids.....	277
Explosives with lined cavities.....	1300
TAYLOR, J. L.	
Numerical-graphical method of stressing hollow girders.....	824
TAYLOR, J. S.	
The analysis of a circular ring with propped floor beam.....	825
TAYLOR, N. W.	
Mechanism of fracture of glass and similar brittle solids.....	281
TEDSEN, L. F.	
Stress rupture and creep tests on aluminum-alloy sheet at elevated temperatures.....	1221
TELFAIR, D.	
Creep, long-time tensile and flexural fatigue properties of melamine, phenolic plastics.....	112
TEMPERLEY, C.	
Intermeshing noncircular algebraic gears.....	937
TEMPLETON, H.	
Approximate solutions for struts supported by an elastic foundation.....	1334
TEMPLIN, R. L.	
Static and fatigue strengths of welded joints in aluminum-manganese-alloy sheet and plates.....	446

## APPLIED MECHANICS REVIEWS

TEODORCHIK, K. F.	
Thomson's self-excited vibrating systems of third and fourth order (in Russian).....	770
TEOFILATO, P.	
Contribution to the analytic representation of a gas current by means of a hydraulic current (in Italian).....	1044
TEOFILATO, S.	
Measurement of shock phenomenon in high-speed water currents (in Italian).....	730
TERADA, K.	
Method for measuring air temperature on a high-speed airplane.....	1168
TERZAGHI, K.	
Soil mechanics in engineering practice.....	853
TESTER, K. G.	
Contribution to the calculation of the hyperbolic paraboloid shell (in German).....	1194
TETERVIN, N.	
Boundary-layer momentum equations for three-dimensional flow.....	319
Determination of general relations for the behavior of turbulent boundary layers.....	991
Laminar flow of a slightly viscous incompressible fluid that issues from a slit and passes over a flat plate.....	1375
THEODORSEN, T.	
Experiments on drag of revolving disks, cylinders, and streamline rods at high speeds.....	800
Theory of propellers.....	889
The theory of propellers—Parts 1, 2, 3, 4.....	890
THIEL, G.	
Six-component measurements on a straight and a 35-deg sweptback trapezoidal wing with and without split flap.....	534
THIESSEN, C. J.	
Absorption measurements of sound in sea water.....	1713
THOM, A.	
The design and work of the Farnborough high-speed tunnel.....	1045
THOMAS, E.	
Radiology of joints in welded piping for power plants.....	1218
THOMAS, T. Y.	
On curved shock waves.....	147
THOMPSON, J.	
Investigations on aluminum alloys of high strength at room temperature.....	1372
THOMSEN, E. G.	
Fracture of some aluminum alloys under combined stress.....	95
The ductility of metals under general conditions of stress and strain.....	833
Investigation on the validity of an ideal theory of elastoplasticity for wrought-aluminum alloys.....	1210
Fracture strength of 75S-T aluminum alloy under combined stress.....	1357
THORNE, C. J.	
Square plates fixed at points.....	610
THORNTON, D. L.	
Pile tests for design and construction economy.....	1561
THORNTON, D. L.	
Impact loading of structures.....	1093
THORPE, H. A.	
Ultrasonic propagation in open air.....	590
THWAITES, B.	
The production of lift independently of incidence.....	883
TIMOSHENKO, S.	
Stress concentration and fatigue failures.....	464
TIPPEL, N.	
Aerodynamic characteristics of rectangular wings swept back with parabolic axis (in French).....	528
TISON, L. J.	
Investigation of the critical tractive force for bed materials (in French).....	1650
TISSEAU, M.	
Measurement of aerodynamic velocities by means of a method of perturbations (in French).....	1689
TODD, F. H.	
The fundamentals of ship vibration.....	584
Ship vibration.....	768
The determination of frictional resistance.....	1062
TODD, K. W.	
Practical aspects of cascade wind-tunnel research.....	1690
TOLL, T. A.	
Summary of lateral-control research.....	716
Approximate relations and charts for low-speed stability derivatives of swept wings.....	1097

- TOLL, T. A. (continued)  
Approximate relations for hinge-moment parameters of control surface on swept wings at low Mach numbers..... 1678
- TOLLMEN, W.  
Steady two-dimensional and rotationally symmetric supersonic flows..... 1246
- TOLSTOV, U. G.  
An electrical device for the solution of homogeneous and nonhomogeneous ordinary linear differential equations (in Russian)..... 933
- TOMS, C. F.  
The performance of rotating-wing aircraft rotors..... 544
- TOPOLIANSKI, D. B.  
On approximations to Dirichlet's integral (in Russian)..... 390
- TÖRNMARK, S.  
Calculation of shock absorbers for landing gears (in Swedish)..... 972
- TORRE, C.  
Influence of the middle principal stress on the condition of flow and failure (in German)..... 273
- TOSTI, L. P.  
Low-speed static stability and damping-in-roll characteristics of some swept and unswept low-aspect-ratio wings... 1674
- TOULOUKIAN, Y. S.  
Heat transfer by free convection from heated vertical surfaces to liquids.... 757
- TOULOUSE, J. H.  
Load concentration in corrugated paper. 1132
- TOURNIER, M.  
A solution of the boundary-layer equations (in French)..... 1518
- TOWNSEND, A. A.  
Measurements in the turbulent wake of a cylinder..... 128  
Decay of vorticity in isotropic turbulence..... 323  
The measurement of double and triple correlation derivatives in isotropic turbulence..... 479  
Decay of isotropic turbulence in the initial period..... 1392
- TRANter, C. J.  
Stresses near the end of a long cylindrical shaft under nonuniform pressure loading..... 409  
Heat flow in an infinite medium heated by a cylinder..... 752  
The use of the Mellin transform in finding the stress distribution in an infinite wedge..... 1599
- TRAUPEL, W.  
Transient heat conduction processes in plates, cylinders, and spheres (in German)..... 1414
- TROXELL, G. E.  
Causes of cleavage fracture in ship plate—tests of wide notched plates.... 1358
- TROXELL, W. W.  
Column characteristics of sandwich panels having honeycomb cores..... 76
- TRUX, T. R.  
Results of accelerated tests and long-term exposures on glue joints in laminated beams..... 982
- TRUETT, R.  
On a problem in plane strain..... 789
- TRUEDELL, C.  
On Sokolovski's 'momentless shells'.... 956  
On the reliability of the membrane theory 1611
- TSAO, P. H.  
Heat transfer at low temperatures between tube walls and gases in turbulent flow..... 194
- TSCHEBOTARIEFF, G. P.  
Lateral earth pressures on flexible retaining walls..... 850
- TSIEN, H. S.  
Flow conditions near the intersection of a shock wave with solid boundary.... 140
- TUCKER, M.  
Experimental investigation of the jet-boundary constriction correction for a model spanning a closed circular tunnel..... 1046
- TUCKER, W. A.  
Characteristics of thin triangular wings with constant-chord partial-span control surfaces at supersonic speeds.... 1257  
Theoretical characteristics in supersonic flow of constant-chord partial-span control surfaces on rectangular wings having finite thickness..... 1663
- TUFT, T. D.  
Underwater explosion tests of simple structures fabricated with Everdur brazing..... 817
- TUFT, T. D. (continued)  
Tensile tests of small-scale welded joints..... 1464
- TUKEY, J. W.  
Linearization of solutions in supersonic flow..... 134
- TUPPER, S. J.  
The theory of wedge indentation of ductile materials..... 102  
The theory of combined plastic and elastic deformation with particular reference to a thick tube under internal pressure..... 282  
A new theory of the plastic deformation in wire drawing..... 1647
- TURING, A. M.  
Rounding-off errors in matrix processes. 1552
- TURNBULL, D.  
Nucleation..... 1699
- TURNER, H. L.  
Sideslip angles and vertical tail loads in rolling pull-out maneuvers..... 692
- TURNER, L. R.  
Theoretical lift distribution and upwash velocities for thin wings at supersonic speeds..... 689  
Thermodynamic charts for the computation of fuel quantity required for constant-pressure combustion with diluents..... 1410
- TWYMAN, J.  
The interpretation into stresses of post-yield strains up to two per cent..... 1629
- TYE, W.  
Gusts..... 152
- TYZZER, F. G.  
The properties of felt in the reduction of noise and vibration..... 779
- UBBRINK, J. B.  
Thermal conductivity of gaseous helium. Pressure dependence of the coefficient of heat conductivity for the gases helium and hydrogen at low temperatures.... 755
- ULRICH, A.  
Systematic investigations of the influence of the shape of the profile upon the position of the transition point.... 525  
Theoretical investigation of drag reduction in maintaining the laminar boundary layer by suction..... 1143
- UMSTÄTTER, H.  
The role of Maxwell's relaxation theorem in the macromolecular organic chemistry (in German)..... 1376
- UNDERWOOD, A. F.  
Load-carrying capacity of journal bearings..... 375
- UNHOLTZ, K.  
Simplified method for design of vibration-isolating supports..... 215
- URICK, R. J.  
Surface reflection of short supersonic pulses in the ocean..... 592
- URSELL, F.  
The effect of a fixed vertical barrier on surface waves in deep water..... 402
- URWIN, C. R.  
Minimizing zero drift in electrical strain-gage bridges..... 239
- UTTER, N.  
On the sound velocity in certain hydrocarbon mixtures (in French)..... 1418
- VALERINO, M. F.  
Cylinder-temperature and cooling-air-pressure instrumentation for air-cooled-engine cooling investigations... 570
- VALLETTE, R.  
Granulometric composition of concrete (in French)..... 1477
- VAN ALLEN, J. A.  
Loss of spin of projectiles: Part I. Experimental method; Part II. Skin friction drag..... 741
- VANCROMBRUGGE, R.  
Determination of residual stresses in some welded structures (in French).... 965
- VAN DER NEUT, A.  
Impact loads on seaplanes during landing with particular reference to the influence of the forward speed..... 989  
Experimental investigation of the post-buckling behavior of stiffened flat rectangular plates under combined shear and compression, Part I..... 1196
- VAN DRIEST, E. R.  
Streamlines for the subsonic space flow of a compressible fluid past a sphere.. 135
- VAN SCOYOC, J. N.  
A direct coupled amplifier for recording dynamic strain..... 1605
- VAN VEEN, J.  
Analogy between tides and alternating currents (in French)..... 908
- VAN WIJNGAARDEN, A.  
The elastic stability of flat sandwich plates..... 1115
- VÁSÁRHELYI, D.  
A new method of solution for photoelastic investigations (in German)..... 1604
- VASILESCO, F.  
On buckling of straight beams having a constant cross section and a variable moment of inertia (in French)..... 428
- VASSEUR, M.  
Mechanical capturing of particles in suspension in the air (in French)..... 1278
- VÁZSONYI, A.  
On the aerodynamic design of axial-flow compressors and turbines..... 1040
- VEDELER, G.  
The distribution of load in longitudinal strength calculations..... 969  
The practical calculation of intersecting girders..... 1199
- VEDERNIKOV, V. V.  
A physical picture of free seepage..... 473
- VEKUA, I. N.  
Some fundamental questions in the theory of a thin spherical shell (in Russian)..... 425  
On the theory of thin shallow elastic shells (in Russian)..... 953  
On a method for boundary-value problems on sinusoidal vibrations of an elastic cylinder (in Russian)..... 1177
- VELIZHANINA, K. A.  
Noise analysis of a moving airplane (in Russian)..... 1095
- VENTURELLO, G.  
Nickel-beryllium brasses (in Italian)... 1480
- VERNOTTE, P.  
Extension of Fourier's method to composite systems with resistance to heat flow between certain regions (in French)..... 748
- VERSCHAFFELT, J. E.  
On the thermomechanics of open systems (in French)..... 1071
- VIAUD, L.  
On pressure measurements in a fluid flow with shock waves (in French)..... 338
- VIGGIANO, L. R.  
Stresses in and general instability of monocoque cylinders with cutouts. IV—Pure bending tests of cylinders with side cutout..... 951
- VIGUIER, G.  
Prandtl boundary layer with important velocity gradients (in French)..... 321  
Dissipation function in an isotropic turbulent flow (in French)..... 327  
Flow of a viscous fluid with high temperature and velocity gradients (in French)..... 475  
Equations of the boundary layer in the case of large-velocity gradients (in French)..... 487
- VIKTORIN, K.  
Investigation of turbulent mixing processes..... 484
- VILLEY, J.  
On the position of the sonic section in the De Laval nozzle (in French)..... 132

## U

## V

## W

- VILLEY, J. (*continued*)  
Subsonic flows in a De Laval nozzle (in French)..... 137  
Model tests on thermopropulsive nozzles (in French)..... 1389
- VINCENT, E. T.  
Supercharging the internal combustion engine..... 1546
- VINCENTI, W. G.  
Wall interference in a two-dimensional flow wind tunnel, with consideration of the effect of compressibility..... 1539
- VIRONNAUD, M.  
Mechanical tests on a new type of cement mortar specimen (in French)..... 1637
- VITI, M.  
Method for determining the profile of the free surface for steady flow in cylindrical stream beds (in Italian)..... 171
- VLASOV, V. Z.  
Some new problems of structural mechanics of shells and thin-wall constructions (in Russian)..... 253  
On two representations of equations of a spherical shell (in Russian)..... 422  
Membrane theory of thin shells of revolution (in Russian)..... 609
- VODICKA, V.  
The circular cylinder in a transient temperature field (in German)..... 1702
- VOGEL, T.  
The oscillation of a heavy viscous liquid in a U-tube (in French)..... 400
- VOGT, F.  
The distribution of loads on rivets connecting a plate to a beam under transverse loads..... 443  
The load distribution in bolted or riveted joints in light-alloy structures..... 444
- VOLTERRA, E.  
Dynamic problems of a beam subject to damping (in Italian)..... 940  
On the general problem of an elastically supported beam, Parts I, II (in Italian)..... 1106  
On the general problem of a plate supported by elastic soil (in Italian)..... 1195
- VON BARANOFF, A.  
Tunnel correction for compressible subsonic flow..... 361
- VON DER NUEL, W. T.  
The radial turbine, especially with regard to gaseous substances: Part I. The radial turbine with inward flow (centripetal turbine), and Part II. The radial turbine with outward flow (centrifugal turbine)..... 163  
Momentum measurement by balancing an impact pendulum..... 164
- VON DOENHOFF, A. E.  
The Langley two-dimensional low-turbulence pressure tunnel..... 547  
Note on similarity conditions for flows with heat transfer..... 925  
Determination of general relations for the behavior of turbulent boundary layers..... 991
- VON ELBE, G.  
Ignition and flame stabilization in gases..... 1067
- VON FREUDENREICH, J.  
The chattering of safety valves and similar mechanisms..... 1448
- VON KÁRMÁN, T.  
Supersonic aerodynamics—principles and applications..... 133  
The similarity law of transonic flow..... 508  
Application of the boundary-layer theory to the problem of oscillations of a viscous fluid of finite weight in a U-tube (in French)..... 1234  
On the statistical theory of turbulence (in French)..... 1237
- VON MISES, R.  
On Bergman's integration method in two-dimensional compressible fluid flow..... 1506
- VOSS, A. W.  
An improved photoelastic method for determining plane stresses..... 242  
Stress distribution in a beam of orthotropic material subjected to a concentrated load..... 1103
- VOSS, W. C.  
Thin-shelled domes loaded eccentrically..... 60
- VOSSKÜHLER, G. H.  
Experiments for the development of a malleable aluminum-magnesium-zinc alloy of high strength (in German)..... 1644
- VULIS, L. A.  
On the mechanics of the propagation of detonation and burning..... 564
- WABER, J. T.  
Determination of physical chemical factors in stress-corrosion cracking of mild steel..... 641
- WAGNER, H.  
Planing of watercraft..... 734
- WALKER, P. B.  
Stability of an aircraft structure in a strength-test frame..... 48
- WALKER, R. M.  
Variable specific-heat corrections for the efficiency of the basic internal-combustion thermodynamic cycle and their application to the constant-volume, constant-pressure, Diesel and Humphrey pump cycles..... 1545
- WALKER, W. T.  
Laboratory measurements of stress distribution in reinforcing steel..... 1118
- WALLACE, A. R.  
Wind-tunnel investigation of the effect of power and flaps on the static longitudinal stability characteristics of a single-engine low-wing airplane model..... 875
- WALLACE, R. L., JR.  
Acoustical materials and acoustical treatments for aircraft..... 406
- WALLOUGH, C.  
A study of piston-ring friction..... 735
- WALSH, J. P.  
The design of vibration-isolating bases for machinery..... 24
- WALTERS, A. G.  
A problem on the conduction of heat..... 754
- WAN, C. C.  
Face buckling and core strength requirements in sandwich construction..... 65
- WANG, C. T.  
Stress analysis of noncircular rings for monocoque fuselages..... 451  
Nonlinear large-deflection boundary-value problems of rectangular plates. Bending of rectangular plates with large deflections..... 608
- WANG, J. S.  
Thermodynamics of equilibrium and stability..... 801
- WANG, T. K.  
Elastic and plastic bending of beams. Torsion and shear effects of members upon general instability of semi-monocoque structures under compression..... 1700  
Buckling of transverse stiffened plates under shear..... 51  
67
- WARRBURTON, J., JR.  
Thermodynamic properties—saturated liquid and vapor of ammonia-water mixtures..... 615
- WARD, A. G.  
A constant-stress apparatus for the study of the creep properties of plastics..... 568
- WARD, E. R.  
Lateral earth pressures on flexible retaining walls..... 985
- WARD, G. N.  
The approximate external and internal flow past a quasi-cylindrical tube moving at supersonic speeds..... 850
- WARFIELD, C. N.  
Tentative tables for the properties of the upper atmosphere..... 1509
- WARNOCK, F. V.  
The change in mechanical properties of mild steel under repeated impact..... 561
- WASHA, G. W.  
Plastic flow of thin reinforced concrete slabs..... 303
- WASSERMAN, R. H.  
New formulations of the equations for compressible flow..... 114
- WÄSTLUND, G.  
Investigation of formation of cracks in reinforced concrete structures (in French)..... 143
- WATKINS, C. E.  
The streamline pattern in the vicinity of an oblique airfoil..... 1346
- WATSON, J. M.  
Low-speed wind-tunnel investigation of various plain-spoiler configurations for lateral control on a 42-deg swept-back wing..... 1012
- WATSON, R. M.  
Cavitation in centrifugal pumps—some of the less well-known factors..... 1267
- 1492
- WATSTEIN, D.  
Distribution of bond stress in concrete pull-out specimens..... 1339
- WATTENDORF, F. L.  
High-speed flow through cambered rotating grids..... 1041
- WEAVER, J. H.  
A method of wind-tunnel testing through the transonic range..... 549
- WEBER, W.  
Viscosity measurements of fluids under high pressures. Part 2 (in German)..... 1579
- WEBSTER, A. P.  
Free falls and parachute descents in the standard atmosphere..... 518
- WEEKES, K.  
Atmospheric oscillations and the resonance theory..... 739
- WEIBEL, E. E.  
Vibration of a nonlinear system during acceleration through resonance..... 583  
A mechanical analyzer for the solution of vibration problems of a single degree of freedom..... 1079
- WEIGAND, A.  
Determination of the stress-concentration factor of a stepped shaft stressed in torsion by means of precision strain gages..... 416
- WEIL, H.  
Aerodynamics of the oscillating airfoil in compressible flow..... 1033
- WEIL, J.  
Wind-tunnel investigation of the effect of power and flaps on the static lateral characteristics of a single-engine low-wing airplane model..... 876
- WEINBERGER, R. A.  
The buckling of a column on equally spaced deflectional and rotational springs..... 960
- WEINIG, F.  
The influence of the diameter ratio on the characteristics diagram of the axial compressor..... 1036
- WEINSTEIN, A.  
On axially symmetric flows..... 478
- WEISS, D. E.  
Design and application of accelerometers..... 6
- WEISSINGER, F.  
Six-component measurements on a straight and a 35-deg sweptback trapezoidal wing with and without split flap..... 534
- WEISSINGER, J.  
The lift distribution of sweptback wings..... 509
- WELCH, W. P.  
A proposed new shock-measuring instrument..... 296
- WELLER, R.  
The optical investigation of fluid flow..... 364
- WELLS, E. G.  
Wind-tunnel investigation of the effect of power and flaps on the static longitudinal stability characteristics of a single-engine low-wing airplane model..... 875
- WELTER, G.  
The effect of notching on materials of construction under static and dynamic tension..... 844
- WENDT, H.  
Cones in supersonic flow..... 337
- WENK, E., JR.  
An elastic tube gage for measuring static and dynamic pressures..... 1653
- WERREN, F.  
Effect of axial stiffeners on the buckling properties of thin curved plywood plates in axial compression..... 1439
- WERTHEIM, R. A. P.  
A new capillary viscometer..... 1536
- WESKE, J. R.  
Experimental investigation of velocity distributions downstream of single duct bends..... 320  
Fluid dynamic aspects of axial-flow compressors and turbines..... 892  
An investigation of the aerodynamic characteristics of a rotating axial-flow blade grid..... 1686
- WESOŁOWSKI, K.  
A study of steel beams from burned and destroyed structures (in Polish)..... 981
- WESTERGAARD, H. M.  
New formulas for stresses in concrete pavements of airfields..... 61
- WETS, C.  
Secondary deflections in metallic ties (in French)..... 1101



- WHIPPLE, R. S.  
Natural philosophy through the eighteenth century and allied topics ..... 1707
- WHISTLER, A. M.  
Correction for heat conduction through longitudinal baffle of heat exchanger.. 196
- WHITCOMB, C. F.  
Investigation of the effects of a nacelle on the aerodynamic characteristics of a swept wing and the effects on sweep on a wing alone..... 1676
- WHITE, A. E.  
An investigation of the high-temperature properties of chromium-base alloys at 1350 F..... 471  
Evaluation of two high-carbon precision-cast alloys at 1700 and 1800 F by the rupture test..... 845  
A study of the properties of 0.5 per cent chromium-0.5 per cent molybdenum pipe steel..... 1478
- WHITE, H. S.  
Measurements of combined frictional and thermal behavior in journal-bearing lubrication..... 905
- WHITE, M. D.  
Sideslip angles and vertical tail loads in rolling pull-out maneuvers..... 692
- WHITE, M. P.  
The permanent strain in a uniform bar due to longitudinal impact..... 220  
The propagation of plasticity in uniaxial compression..... 1450
- WHITE, W. T.  
An integral-equation approach to problems of vibrating beams, Parts I, II.. 772
- WHITEHEAD, L. G.  
Low drag airfoils..... 345
- WHITTLE, F.  
Development of the jet-propulsion gas turbine for aircraft..... 1534
- WIEGHARDT, K.  
Theoretical analysis of stationary potential flows and boundary layers at high speed..... 869
- WIERZBICKI, W.  
Nonelastic buckling of statically determinate supported rods (in Polish).... 1461
- WIGGINS, E. J.  
Power production from nuclear reactors. 1127
- WILDER, A. B.  
A study of the properties of 0.5 per cent chromium-0.5 per cent molybdenum pipe steel..... 1478
- WILKES, M. V.  
Atmospheric oscillations and the resonance theory..... 739
- WILKIE, M. J.  
Temperature distribution in the bush of a journal bearing..... 1439
- WILLIAMS, A. O., JR.  
Absorption of supersonic waves in water near one megacycle..... 223
- WILLIAMS, D. T.  
Effect of Reynolds number in the turbulent-flow range on flame speeds of Bunsen-burner flames..... 1522
- WILLIAMS, G. C.  
Generalized thermodynamics of high-temperature combustion..... 1407
- WILLIAMS, H. A.  
Pure bending in the plastic range..... 56
- WILLIAMS, R. S.  
Development of an air-operated force-measuring system..... 948
- WILLIAMS-LEIR, G.  
The influence of incombustible vapours on the limits of inflammability of gases and vapours in air..... 1409
- WILLIAMSON, J.  
Drag velocity in relation to production of turbulent energy and loss of head in pipes in the  $V^2$ -law region of flow..... 1373
- WILLIAMSON, R. A.  
Torsion-bending stresses in box beams.. 1100
- WILLMORE, T. J.  
Three-dimensional stress systems in isotropic plates..... 1316
- WILSON, A. H.  
A note on the theory of dislocation in metals..... 96
- WILSON, E. B., JR.  
An electrical network for the solution of secular equations..... 2
- WILSON, W. M.  
Residual stresses in welded structures... 447  
Rate of propagation of fatigue cracks in  $12 \times \frac{1}{4}$ -in. steel plates with severe geometrical stress-raisers..... 1356  
Cleavage fracture of ship plates as influenced by size effect..... 1361  
Flexural fatigue strength of steel beams. 1623
- WINCKLER, J.  
The Mach interferometer applied to studying an axially symmetric supersonic air jet..... 1403
- WINSON, J.  
Motion of an unarticulated helicopter blade..... 157  
The testing of rotors for fatigue life..... 1215
- WINTER, G.  
Hipped plate construction..... 80  
Buckling of trusses and rigid frames.... 1619
- WINTERSTEIN, M. G.  
Determination of physical chemical factors in stress-corrosion cracking of mild steel..... 641
- WINTNER, A.  
A criterion for stable characteristic exponents..... 3
- WINZER, A.  
On the use of power laws in stress analysis beyond the elastic range..... 462
- WIRTH, E.  
The value of the heat pump for heating installations..... 1544
- WIRZ, P.  
Properties of simple and multiple cylindrical acoustic resonators (in German). 777
- WITTMANN, F.  
The influence of size on the brittle strength of steel..... 87
- WOODHOUSE, H.  
Inlet conditions of centrifugal compressors for aircraft engine superchargers and gas turbines..... 1273
- WOOLLEY, R. M.  
Instability of simply supported square plate with reinforced circular hole in edge compression..... 1463
- WYLY, L. T.  
Rational design of sections for short compression members of steel..... 70
- WYNIA, S.  
Calculation and correction of the take-off distance of a propeller airplane. Part I: Formula for the take-off distance and derivation of an approximation for use as correction (in Dutch)..... 1265
- YADOFF, O.  
Flow calculations in the steady Poiseuille flow (in French)..... 318
- YAMAMOTO, G.  
Method for measuring air temperature on a high-speed airplane..... 1168
- YOUNG, D.  
Vibration of a beam with concentrated mass, spring, and dashpot..... 582
- YOUNG, R. W.  
Image interference in the presence of refraction..... 589  
Example of propagation of underwater sound by bottom reflection..... 1184
- YOUNG, S. E.  
Theoretical and experimental investigation of buckling shock mount..... 1089
- YU, A. T.  
Shear lag in a plywood sheet-stringer combination used for the chord member of a box beam..... 633
- YUAN, S.  
The flow of a compressible fluid past quasi-elliptic cylinders at high subsonic speeds..... 1513
- YUAN, S. W.  
Stability of rotor-blade flapping motion when the hinges are tilted. Generalization of the 'rectangular ripple' method of solution..... 397
- YUDIN, E. Y.  
On the vortex sound from rotating rods.. 407
- YURYEV, I. M.  
Subsonic gas flow past a wing profile (in Russian)..... 1146

## Z

- ZAGORODSKI, D. M.  
Cold brittleness of steel in presence of compression stresses (in Russian)..... 1628
- ZAHORSKI, A. T.  
Free vibrations of sweptback wing..... 393
- ZALEWSKI, F.  
Rubble as building material (in Polish).. 986
- ZANARONI, O.  
The principle of reciprocity of shearing stresses in shells and its immediate consequences (in Italian)..... 955
- ZAPFEE, C. A.  
Concept of the hydrogen potential in steam-metal reactions..... 1069
- ZENDER, G.  
Stress and distortion measurements in a 45-deg swept box beam subjected to bending and to torsion..... 638
- ZIEGLER, H.  
An extension of the bending theory (in German)..... 52  
Buckling of rods with oblique supports (in German)..... 1332  
Buckling of a twisted rod (in German).... 1620
- ZIENKIEWICZ, O. C.  
The stress distribution in gravity dams.. 84
- ZIPKIN, M. A.  
Analytical and experimental performance of an explosion-cycle combustion chamber for a jet-propulsion engine... 1408
- ZSCHORKE, H. R.  
Requirements of steel for gas turbines... 1683
- ZUCHOW, M. J.  
Principles of jet propulsion and gas turbines..... 891
- ZVOLINSKI, N.  
Propagation of a disturbance from a point impulse in an elastic semispace covered with a layer of fluid (in Russian)..... 943
- ZVOLINSKY, N. V.  
Plane waves in an elastic semispace covered with a liquid layer..... 217

## Y

DE

**T**  
in t  
cove  
were  
T  
APP  
licat  
when  
will  
other  
shou

*Acta*

*Acta*

*Acta*

*Amer.*

*Amer.*

*An. M.*

*Ann.*

*Ann. A.*

*Ann.*

*Ann.*

*Ann.*

*Arch. E.*

*Arch. e.*

*Arch. M.*

*Arch. M.*

*Arch. M.*

*Arch. tec.*

*Ass. fr.*

*Austral.*

searc

dust

Victo

## Periodicals Now Being Regularly Scanned

(Supplementary List)

THIS list of periodicals being scanned to produce APPLIED MECHANICS REVIEWS is supplementary to the list published in the July, 1948 issue of APPLIED MECHANICS REVIEWS and covers only those periodicals which had not been received and so were not included at that time.

The following information is given: The abbreviation used in APPLIED MECHANICS REVIEWS; full name; frequency of publication; address of publisher; language in which published when this is not evident from the country. The Editorial Office will appreciate receiving the name and publisher's address of any other publication in the field of applied mechanics which we should cover.

## A

- Acta Polyt.*—Acta Polytechnica; irregular; Royal Swedish Academy of Engineering Sciences, Stockholm, Sweden (in English, French, or German).
- Aero. Res. tech. Notes.*—Aeronautical Research Technical Notes; monthly; The Technical Service Department, Aeronautical Research Limited, Duxford, Cambridge, England.
- Amer. Inst. Steel Constr. Rep.*—American Institute of Steel Construction Report; irregular; American Institute of Steel Construction Research at Lehigh University, Bethlehem, Pennsylvania, U.S.A.
- Amer. J. Math.*—American Journal of Mathematics; quarterly; Johns Hopkins Press, Baltimore 18, Maryland, U.S.A.
- An. Mecán. Elect.*—Anales de Mecánica y Electricidad; bimonthly; La Asociación de Ingenieros del I. C. A. I., Reina 31, Madrid, Spain.
- Ann. Phys. Leipzig*—Annalen der Physik, Leipzig; irregular; Johann Ambrosius Barth, Leipzig, Germany.
- Ann. Scu. norm. sup. Pisa*—Annali della Scuola Normale Superiore di Pisa Scienze, Fisiche e Matematiche; quarterly; Nicola Zanichelli, Editore, Bologna, Italy (in Italian and German).
- Ann. Trav. publics Belg.*—Annales des Travaux Publics de Belgique; bimonthly; Imprimerie G.I.G., 61 Avenue de la Liberté, Bruxelles, Belgium (in French or Flemish).
- Anz. Akad. Wiss. Wien*—Anzeiger der Österreichischen Akademie der Wissenschaften. Mathematisch-naturwissenschaftliche Klasse; irregular; Springer-Verlag, Mölkerbastei, Wien I, Austria.
- Arch. Eisenhüttenw.*—Archiv für das Eisenhüttenwesen; irregular; Verlag Stahleisen m.b.H., Schliessfächer 669, Düsseldorf, Germany.
- Arch. elekt. Übertr.*—Archiv der Elektrischen Übertragung; monthly; Dieterich'sche Verlagsbuchhandlung, Inh. W. Klemm, Wiesbaden, Germany.
- Arch. Math.*—Archiv der Mathematik; bimonthly; Verlag G. Braun G.m.b.H., Karl-Friedrichstrasse 14, Karlsruhe i. B., Germany.
- Arch. Metallk.*—Archiv für Metallkunde; monthly; Verlag Chemie, G.m.b.H., Weinheim/Bergstrasse, Germany.
- Arch. tech. Messen*—Archiv für Technisches Messen; quarterly; Leibniz Verlag, München, Germany.
- Ass. fr. Avance. Sci.*—Association Française pour l'Avancement des Sciences; semiannually; 28 rue Serpente, Paris VI, France.
- Austral. J. sci. Res. ser. A*—Australian Journal of Scientific Research, Series A; quarterly; Council for Scientific and Industrial Research, 314 Albert Street, East Melbourne, C.2, Victoria, Australia.

## B

- Brown Univ. Rep.*—Brown University Report; irregular; Graduate Division of Applied Mathematics, Brown University, Providence, Rhode Island, U.S.A.
- Build. Res. spec. Rep.*—Building Research Special Report; irregular; His Majesty's Stationery Office, York House, Kingsway, London, W.C.2, England.
- Build. Res. tech. Bull.*—Building Research Technical Bulletin; irregular; same publisher as Build. Res. spec. Rep.
- Build. Res. tech. Pap.*—Building Research Technical Paper; irregular; same publisher as Build. Res. spec. Rep.
- Bul. Polit. Bucarest*—Buletinul Politehnicei din Bucuresti; three issues per year; Politehnica din Bucuresti, Calea Grivitei Nr. 132, Bucuresti, Rumania (in French or Rumanian).
- Bull. Earthq. Res. Inst. Tokyo*—Bulletin of the Earthquake Research Institute, Tokyo University; quarterly; Director of the Earthquake Research Institute, Tokyo University (in Japanese with English summaries or in English with Japanese summaries).
- Bull. Nat. Res. Council.*—Bulletin of the National Research Council; irregular; National Research Council, National Academy of Sciences, Washington, D. C., U.S.A.
- Bull. Sci. Math.*—Bulletin des Sciences Mathématiques; monthly; Gauthier Villars, 55 Quai des Grands-Augustins, Paris VI, France.
- Bull. Soc. Ing. civ. Fr.*—Bulletin de la Société des Ingénieurs Civils de France; bimonthly; Société des Ingénieurs Civils de France, Hotel de la Société, 19 rue Blanche, Paris 9, France.
- Bull. Soc. Sci. Liège*—Bulletin de la Société Royale des Sciences de Liège; monthly; Imprimerie M. Hayez, rue de Louvain 112, Bruxelles, Belgium (in French).
- Bull. tech. Suisse rom.*—Bulletin Technique de la Suisse Romande; biweekly; F. Rouge et Cie, Lausanne, Switzerland (in French).

## C

- C. R. Acad. Sci. Roum.*—Comptes Rendus des Séances de l'Académie des Sciences de Roumanie; Academia Româna, Calea Victoriei 125, Bucuresti, Rumania (in French).
- CADO tech. Data Dig.*—Central Air Documents Office, Technical Data Digest; semimonthly; Air Documents Division Intelligence Dept., Air Materiel Command, Wright Field, Dayton, Ohio; new name since December 1948 for *Air Technical Intelligence, Technical Data Digest*.
- Canad. J. Math.*—Canadian Journal of Mathematics; quarterly; University of Toronto, Toronto 5, Ontario, Canada.
- Chem. Tech. Chem.-Ing. Wes.*—Chemische Technik und Chemie-Ingenieurwesen; monthly; Verlag Chemie G.m.b.H., Weinheim/Bergstrasse, Germany; new name since January 1949 for *Angewandte Chemie, Part B, Technische-Wirtschaftlicher Teil*.
- Counc. sci. indust. Res. Div. Aero. Rep.*—Council for Scientific and Industrial Research Division of Aeronautics Reports; irregular; Aeronautical Laboratory, Fishermen's Bend, Melbourne, Australia.
- Czas. Tech.*—Czasopismo Techniczne; monthly; Naczelna Organizacja Techniczna, Oddział w Krakowie i Krakowskie Towarzystwo Techniczne, Straszewskiego 28, Krakow, Poland.

## D

- Disc. Faraday Soc.*—Discussions of the Faraday Society; irregular; Gurney and Jackson, 98 Great Russell Street, London, England.



## E

*Elektroteknikeren*—Elektroteknikeren; semimonthly; Sølvgade 10, København K, Denmark.

## F

*For. Prod. Lab. Rep.*—Forest Product Laboratory Reports; irregular; United States Department of Agriculture, Forest Service, Forest Products Laboratory, Madison 5, Wisconsin, U.S.A.

## G

*Geol. Rdsch.*—Geologische Rundschau; annually; Ferdinand Enke Verlag, Stuttgart, Germany (in German with English and French summaries).

## H

*Harvard Univ. Publ. grad. Sch. Engng.*—Harvard University Publications from the Graduate School of Engineering; irregular; Harvard University, Graduate School of Engineering, Cambridge 38, Massachusetts, U.S.A.

## I

*Indagationes Math.*—Indagationes Mathematicae; five issues per year; North-Holland Publishing Company, Amsterdam, Holland (in English, French or German).

*Ingeniørvitenskabelige Skr.*—Ingeniørvitenskabelige Skrifter; irregular; Academy of Technical Sciences, The Laboratory of Technical Physics; The Technical University of Denmark, København, Denmark (in English).

*Inst. Metals Monogr. Rep. Ser.*—Institute of Metals Monograph and Report Series; irregular; Institute of Metals, 4 Grosvenor Gardens, London, S.W.1, England.

*Inst. Tech. Bâtiment. Trav. Publ.*—see *Bâtiment. Trav. Publ.*

*Iron Steel Engr.*—Iron and Steel Engineer; monthly; Association of Iron and Steel Engineers, 1010 Empire Building, Pittsburgh 22, Pennsylvania, U.S.A.

## J

*J. Lond. math. Soc.*—Journal of the London Mathematical Society; quarterly; C. F. Hodgson & Son, Ltd., 2 Newton Street, Kingsway, London, W.C.2, England.

*J. roy. Astr. Soc. Can.*—Journal of the Royal Astronomical Society of Canada; bimonthly; David Dunlap Observatory, Richmond Hill P. O., Ontario, Canada.

*J. sci. Res. Inst.*—Journal of the Scientific Research Institute, Tokyo; irregular; The Scientific Research Institute, Tokyo, Japan (in English).

## K

*Kautschuk Gummi*—Kautschuk und Gummi; monthly; Taubenstrasse 48/49, Berlin W8, Germany.

*Kyushu Univ. Res. Inst. Elast. Engng. Rep.*—Kyushu University Research Institute for Elasticity Engineering Reports; irregular; Kyushu University, Fukuoka, Japan (in English).

## M

*Mat. Sborn.*—Matematicheskii Sbornik; monthly; Academy of Sciences, Moscow, Russia.

*Math. Ann.*—Mathematische Annalen; irregular; Springer-Verlag, Neuenheimer Landstrasse 24, Heidelberg, Germany.

*Memo. Fac. Engng. Kyushu Univ.*—Memoirs of the Faculty of Engineering, Kyushu University; quarterly; Kyushu University, Fukuoka, Japan (in English with Japanese summaries and in Japanese with English summaries).

*Mémo. Soc. Ing. civ. Fr.*—Mémoires de la Société des Ingénieurs Civils de France; bimonthly; Société des Ingénieurs Civils de France, Hotel de la Société, 19 rue Blanche, Paris 9, France.

*Met. Rdsch.*—Meteorologische Rundschau; monthly; Springer-Verlag, Neuenheimer Landstrasse 24, Heidelberg, Germany (in German with English abstracts).

*Metallforsch.*—Metallforschung; monthly; Dr. Riederer-Verlag, Stuttgart, Germany; see *Z. Metallk.*

*Métallurg. Constr. mécan.*—La Métallurgie et la Construction Mécanique; monthly; La Métallurgie, 79 Avenue des Champs-Élysées, Paris, France.

*Metallurg. Elect.*—Metalurgia y Electricidad; monthly; Metalurgia y Electricidad, Avenida de Jose Antonio 47, Madrid, Spain.

*Métaux Corrosion*—Métaux et Corrosion; monthly; Éditions Métaux, 32 rue du Maréchal-Joffre, Saint-Germain-en-Laye (Seine-et-Oise), France.

*Mitt. Wöhler Inst. Braunschweig*—Mitteilungen des Wöhler-Instituts Braunschweig; irregular; Friedr. Vieweg & Sohn, G.m.b.H., Bergplatz 1, Braunschweig, Germany.

*Motortech. Z.*—Motortechnische Zeitschrift; bimonthly, Franckh'sche Verlagshandlung, Pfizerstrasse 5-7, Stuttgart O, Germany.

## N

*Nat. Bur. Stands. Circ.*—National Bureau of Standards Circulars; irregular; National Bureau of Standards, U. S. Department of Commerce, Washington 25, D. C., U.S.A.

*Nat. Bur. Stands. misc. Publ.*—National Bureau of Standards Miscellaneous Publications; irregular; same publisher as *Nat. Bur. Stands. Circ.*

*Naturwissenschaften*—Die Naturwissenschaften; semimonthly; Springer-Verlag, Berlin, Germany.

*Nav. ord. Lab. Rep.*—Naval Ordnance Laboratory Report; irregular; Office of the Publication Board, Department of Commerce, Washington 25, D. C., U.S.A.

## P

*Pap. phys. Oceanogr. Met.*—Papers in Physical Oceanography and Meteorology; irregular; Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, U.S.A.

*Philips Res. Rep.*—Philips Research Reports; bimonthly; Elsevier Book Co., Inc., 215 Fourth Avenue, New York 3, New York, U.S.A. (in English).

*Polyt. Tijdschr.*—Polytechnisch Tijdschrift; biweekly; Balistraat 28, s 'Gravenhage, Holland.

*Proc. Indian Acad. Sci. Sec. A.*—Proceedings of the Indian Academy of Sciences, Section A; monthly; Indian Academy of Sciences, Bangalore, India (in English).

*Proc. nat. Conf. indust. Hyd.*—Proceedings of the National Conference on Industrial Hydraulics; annually; National Conference on Industrial Hydraulics, Armour Research Foundation, Technology Center, Chicago 16, Illinois, U.S.A.

*Proc. roy. Inst. Gr. Brit.*—Proceedings of the Royal Institution of Great Britain; annually; Messrs. William Clowes & Sons, Ltd., Little New Street, London, E.C.4, England.

*Proc. roy. Swed. Acad. engng. Sci.*—Proceedings of the Royal Swedish Academy of Engineering Sciences; irregular; Royal Swedish Academy of Engineering Sciences, Stockholm, Sweden (in English).

*Prod. Engng.*—Product Engineering; monthly; McGraw-Hill Publishing Company, 330 W. 42nd Street, New York 18, New York, U.S.A.

*Publ. Dom. Observ.*—Publications of the Dominion Observatory; irregular; Department of Mines & Resources, Mines, Forests and Scientific Services Branch, Ottawa, Ontario, Canada.

## R

*Rep. Memo. aero. Res. Counc. Lond.*—Reports and Memoranda of the Aeronautical Research Council of Great Britain; irregular; His Majesty's Stationery Office, York House, Kingsway, London, W.C.2, England.

*Rev. Ordem Engenrs.*—Revista da Ordem dos Engenheiros; monthly; Av. de Antonio Augusto de Aguiar 1, Lisboa-N, Portugal.

*Rev. trim. Canad.*—Revue Trimestrielle Canadienne; quarterly; École Polytechnique, 1430 rue Saint-Denis, Montréal 18, Canada (in French or English).

*Riv. Milit.*—Rivista Militare; monthly; Via Di S. Marco 8, Roma, Italy.

*Riv. Nuovo Cim.*—La Rivista del Nuovo Cimento; supplement to *Il Nuovo Cimento*, which see.

## S

*Sborn. Masaryk. Akad. Práce*—Sborník Masarykovy Akademie Práce; at least four issues a year; Masarykovy Akademie Práce, Praha II, Czechoslovakia.

*Sci. Rec.*—Science Record; irregular; Academia Sinica, Nanking 5, China (in English, French or German).

*Stahl Eisen*—Stahl und Eisen; every four weeks; Verlag Stahleisen m.b.H., August-Thyssen-Strasse 1, Düsseldorf, Germany.

*Studii*—Studii; quarterly; B-Dul Mareşal Tito 29, Bucureşti, Rumania.

## T

*T.N.O. Nieuws*—T.N.O.-Nieuws; monthly; T.N.O.-Nieuws, A. H. Kruyt, Bussum, Holland.

*Tech. mod. Constr.*—La Technique Moderne-Construction; monthly; Éditeur Dunod, 92 rue Bonaparte, Paris 6, France.

*Tech. Rdsch. Bern*—Technische Rundschau; weekly; Technische Rundschau, Breitenrainstrasse 97, Bern, Switzerland (in German).

*Tech. Wet. Tijdschr.*—Technisch-Wetenschappelijk Tijdschrift; monthly; Vlaamse Ingenieursvereniging, Torenggebouw VIII, Schoenmarkt 31, Antwerpen, Belgium (in Flemish).

*Técn. Metalúrg.*—Técnica Metalúrgica; bimonthly; Asociación Técnica Española de Estudios Metalúrgicos, Paseo de Gracia, 50, Barcelona, Spain.

*Techn. Xponika*—Texnika Xponika; monthly; Technical Chronicles, Greek Technical Chamber, Athens, Greece.

*Termotecnica*—La Termotecnica; monthly; Associazione Termotecnica Italiana, Via N. Torriani 3, Milano, Italy.

*Tijdschr. ned. aardijksk. Genoot.*—Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap; bimonthly; Secretariat, Heerengracht 619, Amsterdam C, Holland (Dutch or English and some English summaries).

*Trans. Dan. Acad. tech. Sci.*—Transactions of the Danish Academy of Technical Sciences; six issues per year; Laboratoriet for Teknisk Fysik, Danmarks Tekniske Højskole, Østervoldgade 10, København K, Denmark (in English).

*Trans. Faraday Soc.*—Transactions of the Faraday Society; monthly; Gurney and Jackson, 98 Great Russell Street, London, England.

*Trans. Soc. nav. Archit. mar. Engrs.*—Transactions of the Society of Naval Architects and Marine Engineers; one volume annually; Society of Naval Architects and Marine Engineers, New York, New York, U.S.A.

## U

*U. S. atom. energy Comm. Doc.*—United States Atomic Energy Commission Documents; irregular; United States Atomic Energy Commission, Document Sales Agency, P. O. Box 62, Oak Ridge, Tennessee, U.S.A.

*Univ. B. C. Dept. agr. Engng. Publ.*—University of British Columbia, Department of Agricultural Engineering Publications; irregular; University of British Columbia, Department of Agricultural Engineering, Vancouver, British Columbia, Canada.

*Univ. Iowa Stud. Engng. Bull.*—University of Iowa Studies in Engineering Bulletin; irregular; University of Iowa, Iowa City, Iowa, U.S.A.

## W

*Wiss. Veröff. T. H. Darmstadt*—Wissenschaftliche Veröffentlichungen der Technischen Hochschule Darmstadt; semi-annually; Carl Winter, Universitätsverlag, Heidelberg, Germany.

## Z

*Z. Met.*—Zeitschrift für Meteorologie; monthly; Deutscher Zentralverlag, Breite Strasse 37, Berlin C2, Germany.

*Z. Metallk.*—Zeitschrift für Metallkunde; monthly; Dr. Riederer-Verlag, Stuttgart, Germany; new name since January 1949 for *Metallforschung*.

*Z. Öst. Ingen.-Archit.-Ver.*—Zeitschrift des Österreichischen Ingenieur- und Architekten-Vereines; biweekly; Springer-Verlag, Mölkerbastei 5, Wien I, Austria (in German).

*Z. Ver. dtsh. Ing.*—Zeitschrift des Vereines deutscher Ingenieure; monthly; Deutscher-Ingenieur-Verlag G.m.b.H., Ratingen b (22a), Düsseldorf, Germany.





## List of Reviewers

THE editors wish to express appreciation on behalf of themselves as well as all the readers of this magazine to the following scientists who have graciously consented to give their time and the benefit of their learning to review articles for APPLIED MECHANICS REVIEWS.

## A

- ABODY-ANDERLIK, E.—Műegyetem, Budapest, Hungary; deceased.  
 ALLEN, D. N. DE G.—Imperial College, London, S.W.7, England.  
 ALLEN, E. G.—Aircraft Gas Turbine Division, River Works, General Electric Company, Lynn, Massachusetts, U.S.A.  
 ALLEN, H. JULIAN—Ames Aeronautical Laboratory, Moffett Field, California, U.S.A.  
 ANDERSON, H. H.—Duneraig, Bridge of Allan, Scotland.  
 ARNOLD, R. N.—Department of Engineering, King's Buildings, Mayfield Road, Edinburgh 9, Scotland.  
 ARNSTEIN, KARL—Goodyear Aircraft Corporation, Akron 15, Ohio, U.S.A.

## B

- BARBER, EDWARD S.—2809 2nd Road N., Arlington, Virginia, U.S.A.  
 BARON, FRANK—Northwestern University, Technological Institute, Evanston, Illinois, U.S.A.  
 BARTON, HENRY J.—Armour Research Foundation, Chicago 16, Illinois, U.S.A.  
 BARTON, N. V.—Aeronautical Engineering Department, University of Texas, Austin, Texas, U.S.A.  
 BARWELL, F. T.—National Physical Laboratory, Teddington, Middlesex, England.  
 BATCHELOR, G. K.—Conduit Head II, Madingley Road, Cambridge, England.  
 BATDORF, S. B.—National Advisory Committee for Aeronautics, Langley Field, Virginia, U.S.A.  
 BAŽANT, Z.—Trojanova 13, Praha II, Czechoslovakia.  
 BECKER, JOHN V.—21 Sunset Road, Lakeside, P. O. Box 48, Hinton Village, Virginia, U.S.A.  
 BELEŞ, AUREL A.—Splaiul Independentei 65, Bucuresti VI, Rumania.  
 BELLIN, ALBERT I.—201 Pierce Hall, Harvard University, Cambridge 38, Massachusetts, U.S.A.  
 BENINI, A.—via Tremiti 2, (Montesacro), Roma, Italy.  
 BENSCOTER, STANLEY U.—1596 Corson St., Pasadena, California, U.S.A.  
 BERGELIN, OLAF P.—University of Delaware, Newark, Delaware, U.S.A.  
 BERGMAN, STEFAN—Room 223, Pierce Hall, Harvard University, Cambridge 38, Massachusetts, U.S.A.  
 BERKER, RATIP—Koca Mansur Sok. No. 66/5, Sisli, Istanbul, Turkey.  
 BERNHARD, R. K.—College of Engineering, Rutgers University, New Brunswick, New Jersey, U.S.A.  
 BERNHARDT, C. J.—Norges Tekniske Høgskole, Trondheim, Norway.  
 BERS, LIPMAN—Syracuse University, Syracuse, New York, U.S.A.  
 BESKIN, L.—Bureau of Aeronautics, Navy Department, Washington, D. C., U.S.A.; deceased.  
 BETZ, ALB.—Herzbergerlandstr. 39a, Göttingen, Germany.  
 BICKLEY, W. G.—27, Cuckoo Hill, Pinner, Middlesex, England.  
 BIERMANN, LUDWIG—Böttingerstr. 4, Göttingen, Germany.  
 BIEZENO, C. B.—Laboratorium voor Toegepaste Mechanica, Technische Hoogeschool, Nieuwe Laan 76, Delft, Holland.

- BINDER, R. C.—School of Mechanical Engineering, Purdue University, West Lafayette, Indiana, U.S.A.  
 BISPLINGHOFF, R. L.—Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.  
 BLEICH, HANS—102 West 80th St., New York 24, New York, U.S.A.  
 BLIGHT, F. G.—CSIR Division of Aeronautics, GPO Box 4331, Melbourne, Cl, Australia.  
 BLOK, H.—20 Broekmolenweg, Delft, Holland.  
 BOBROWSKY, A. R.—Head, High-Temperature Materials Section, National Advisory Committee for Aeronautics, 66 East Bridge St., Berea, Ohio, U.S.A.  
 BOELTER, L. M. K.—University of California, Los Angeles 24, California, U.S.A.  
 BOGDANOFF, JOHN L.—123 North Middletown Road, Pearl River, New York, U.S.A.  
 BOITEN, R. G.—Department of Mechanical Engineers, Nieuwe Laan 76, Delft, Holland.  
 BOLEY, BRUNO A.—Dept. 28, Plant A, Goodyear Aircraft Corporation, Akron 15, Ohio, U.S.A.  
 BONNEY, E. ARTHUR—Applied Physics Laboratory, Johns Hopkins University, Silver Spring, Maryland, U.S.A.  
 BOWDEN, PHILIP—University of Cambridge, Free School Lane, Cambridge, England.  
 BRANDT-MØLLER, P. N.—Lyngbyvej 72, Copenhagen ø, Denmark.  
 BRESLER, B.—Engineering Materials Laboratory, University of California, Berkeley 4, California, U.S.A.  
 BREUHAUS, W. O.—Cornell Aeronautical Laboratory, P. O. Box 235, Buffalo 21, New York, U.S.A.  
 BRICAS, M.—29 Kolokotroni Str., Athens, Greece.  
 BRINKLEY, STUART R., JR.—U. S. Bureau of Mines, 4800 Forbes St., Pittsburgh 13, Pennsylvania, U.S.A.  
 BRINKMAN, H. C.—Zwaardemakerstraas 21, Bussum, Holland.  
 BRITTENHAM, E. A., JR.—Goodyear Aircraft Corporation, Akron 15, Ohio, U.S.A.  
 BRODSKY, ANDREW—School of Technology, College of the City of New York, New York 31, New York, U.S.A.  
 BROWN, A. F. C.—Engineering Division, National Physical Laboratory, Teddington, Middlesex, England.  
 BUDINSKY, FERD.—Balbinova 26, Praha XII, Czechoslovakia.  
 BUHRMAN, J.—Nationaal Luchtvaartlaboratorium, Slotterweg 145, Amsterdam, W, Holland.  
 BULLEN, K. E.—Department of Mathematics, University, Sydney, N.S.W., Australia.  
 BURGERS, J. M.—Laboratorium voor Aero-En Hydrodynamica, Nieuwe Laan 76, Delft, Holland.  
 BURWELL, JOHN T., JR.—Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.  
 BUTTON, R. E.—Mechanical Engineering Department, South Australian School of Mines, Adelaide, South Australia.

## C

- CAIN, B. S.—Locomotive Engineering Division, General Electric Company, Erie 2, Pennsylvania, U.S.A.  
 CARÉ, A.—via Livorno 45, Roma, Italy.  
 CARRIER, GEORGE—27 Brown St., Brown University, Providence, Rhode Island, U.S.A.  
 CATTANEO, C.—via Savoia 78, Roma, Italy.  
 CERADINI, G.—Lungotevere Arnaldo da Brescia 9, Roma, Italy.  
 CHAKO, NICHOLAS—Alabama Polytechnic Institute, Auburn, Alabama, U.S.A.  
 CHANG, CHIEH-CHIEN—Aeronautics Department, Johns Hopkins University, Baltimore 18, Maryland, U.S.A.  
 CHARTERS, A. C.—Ballistic Research Laboratories, Aberdeen Proving Ground, Maryland, U.S.A.

- CHARYK, J. V.—Aeronautical Engineering Laboratory, Princeton University, Princeton, New Jersey, U.S.A.
- CHENEY, PAUL F.—Engineering Mechanics Department, University of Michigan, Ann Arbor, Michigan, U.S.A.
- CHIEN, WEI-ZANG—Mechanical Engineering Department, National Tsing Hua University, Peiping, China.
- CHILDS, J. HOWARD—2267 Olive Ave., Lakewood 7, Ohio, U.S.A.
- CHOU, P. Y.—Department of Physics, National Tsing Hua University, Peiping, China.
- CHU, P. C.—Laboratory of Fluid Mechanics, Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.
- CITRINI, DUILIO—Istituto di Idraulica, Politecnico di Milano, Milano, Italy.
- CLAUSER, FRANCIS H.—Johns Hopkins University, Baltimore 18, Maryland, U.S.A.
- COFFIN, LOUIS F., JR.—Room 1-313, Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.
- CONCORDIA, CHARLES—Central Station Engineering Division, General Electric Company, Schenectady 5, New York, U.S.A.
- COOK, RICHARD K.—National Bureau of Standards, Washington 25, D. C., U.S.A.
- CONRAD, OTTO—Böttingerstr. 6/8, Göttingen, Germany.
- COPE, W. F.—National Physical Laboratory, Teddington, Middlesex, England.
- CORNELL, W. G.—Aircraft Gas Turbine Engineering Division, General Electric Company, West Lynn 3, Massachusetts, U.S.A.
- CORNER, J.—4 Haywood Rise, Orpington, Kent, England.
- CORRIN, STANLEY—Johns Hopkins University, Baltimore 18, Maryland, U.S.A.
- CORT, JOSEPH H.—Department of Physiology, Clare College, Cambridge, England.
- CRANDALL, STEPHEN H.—Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.
- CRAYA, A.—Neyric BP. 52, Grenoble, France.
- CREDE, CHARLES E.—Barry Corporation, Cambridge 39, Massachusetts, U.S.A.
- CROCCO, LUIGI—18 via Eudossiana, Roma, Italy.
- CRONVICH, LESTER L.—Applied Physics Laboratory, Johns Hopkins University, Silver Spring, Maryland, U.S.A.

## D

- DANILOFF, MICHAEL—Barta Building 251, Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.
- DAVID, F. W.—CSIR Division of Aeronautics, GPO Box 4331, Melbourne, Cl, Australia.
- DAVIES, R. M.—Department of Physics, University College of Wales, Aberystwyth, Wales.
- DAVIS, EVAN A.—Westinghouse Research Laboratories, East Pittsburgh, Pennsylvania, U.S.A.
- DE FÉRIET, J. KAMPÉ—La Faculté des Sciences, Université de Lille, 16 Rue des Jardins, Lille, France.
- DE JUHASZ, K. J.—730 North Atherton St., State College, Pennsylvania, U.S.A.
- DE MARCHI, GIULIO—Politecnico, Piazza, Leonardo da Vinci, 32, Milano, Italy.
- DEMEULEMEESTER, D.—Boulevard Albert, 115, Gand, Belgium.
- DEAN, W. R.—Trinity College, Cambridge, England.
- DEN HARTOG, J. P.—Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.
- DEWEY, JANE M.—R. D. #2, Havre de Grace, Maryland, U.S.A.
- DI PINTO, NICHOLAS—164-16 115th Ave., Jamaica 5, New York, U.S.A.

- DODGE, R. A.—University of Michigan, Ann Arbor, Michigan, U.S.A.
- DOHRENWEND, C. O.—Midwest Research Institute, Kansas City, Missouri, U.S.A.
- DOKOS, S. J.—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.
- DOLAN, T. J.—321-B Talbot Laboratory, College of Engineering, University of Illinois, Urbana, Illinois, U.S.A.
- DONELY, PHILIP—National Advisory Committee for Aeronautics, Langley Field, Virginia, U.S.A.
- DOWELL, MILLARD F.—Gas Turbine Division, River Works, General Electric Company, Lynn, Massachusetts, U.S.A.
- DRESCHER, HANS—Bunsenstrasse 10, Göttingen, Germany.
- DRUCKER, D. C.—Graduate Division Applied Mathematics, Brown University, Providence, Rhode Island, U.S.A.
- DRYDEN, HUGH L.—2020 Pierce Mill Road N. W., Washington 10, D. C., U.S.A.
- DUKE, C. MARTIN—University of California, Los Angeles 24, California, U.S.A.
- DUNNE, P. C.—Royal Aeronautical Society, 4, Hamilton Place, London, W.1., England.
- DURELLI, A. J.—Armour Research Foundation, Chicago 16, Illinois, U.S.A.

## E

- EATON, ALVIN R., JR.—Applied Physics Laboratory, Johns Hopkins University, Silver Spring, Maryland, U.S.A.
- EDLING, SVEN—Tombolavagen 11, Stockholm 42, Sweden.
- ELROD, H. G., JR.—Gordon McKay Laboratory, Oxford Street, Cambridge, Massachusetts, U.S.A.
- EMMONS, HOWARD W.—Department of Engineering, Sciences & Applied Physics, Harvard University, Cambridge, Massachusetts, U.S.A.
- EPSTEIN, BENJAMIN—Department of Mathematics, Wayne University, Detroit 1, Michigan, U.S.A.
- ESCANDE, L.—Université de Toulouse, Toulouse, France.
- ESMEIJER, W. L.—Tak van Poortvlietstraat 17, Delft, Holland.
- EIJEN, ERNST—Böttingerstr. 6/8, Göttingen, Germany.
- EVANS, J. M.—CSIR Division of Aeronautics, GPO Box 4331, Melbourne, Cl, Australia.

## F

- FADUM, R. E.—School of Civil Engineering and Engineering Mechanics, Purdue University, Lafayette, Indiana, U.S.A.
- FAVRE, HENRY—Swiss Federal Institute of Technology, Zurich, Switzerland.
- FEHR, ROBERT—General Electric Company, Schenectady, New York, U.S.A.
- FEHRMAN, ROLLIE G.—10 E. 17th St., U. S. Engineers, Kansas City, Missouri, U.S.A.
- FEJER, ANDREW—Packard Motor Car Company, Toledo 12, Ohio, U.S.A.
- FERRARI, CARLO—Laboratorio di Aeronautica, Politecnico di Torino, Torino, Italy.
- FINDLEY, WILLIAM N.—302a Talbot Laboratory, College of Engineering, University of Illinois, Urbana, Illinois, U.S.A.
- FLAX, A. H.—Cornell Aeronautical Laboratory, Buffalo, New York, U.S.A.
- FOA, JOSEPH V.—Cornell Aeronautical Laboratory, Buffalo, New York, U.S.A.
- FOLSOM, RICHARD G.—University of California, Berkeley 4, California, U.S.A.
- FÖPPL, LUDWIG—Technische Hochschule, München, Germany.
- FOSTER, HENRY W.—4442 Caledonia Way, Los Angeles 41, California, U.S.A.

- FRANKLAND, J. M.—Chance Vought Aircraft, Stratford, Connecticut, U.S.A.  
 FRENKIEL, F. N.—Benjamin Franklin Station, P. O. Box 7611, Washington 4, D. C., U.S.A.  
 FREUDENTHAL, A. M.—1044 Madison Ave., New York, New York, U.S.A.  
 FRITZ, W.—Physikalische-Technische Reichsanstalt, Braunschweig, Germany.  
 FROCHT, M. M.—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.

## G

- GADD, CHARLES W.—Orchard Lake Village, Michigan, U.S.A.  
 GALUZEVSKI, R. A.—College of Engineering, University of California, Berkeley 4, California, U.S.A.  
 GELBART, ABE—Mathematics Department, Syracuse University, Syracuse, New York, U.S.A.  
 GELEJI, A.—Budapest-Csepel, Weiss Manfred gyartelep, Hungary.  
 GENSAMER, MAXWELL—Carnegie Illinois Steel Corporation, Pittsburgh 30, Pennsylvania, U.S.A.  
 GENTILONI-SILVERI, D.—via XX Settembre, 118, Roma, Italy.  
 GERARD, GEORGE—Guggenheim School of Aeronautics, New York University, New York 53, New York, U.S.A.  
 GHASWALA, S. K.—"Edena," Queen's Road, Fort, Bombay, India.  
 GHOSH, R. N.—152, South Malaka, Allahabad, (U.P.), India.  
 GINZEL, INGBERG—Max-Planck Institut für Strömungsforschung, Göttingen, Germany.  
 GLOVER, RALPH P.—5735 South Dorchester, Chicago 37, Illinois, U.S.A.  
 GOGUEL, JEAN—100 rue du Bac, Paris VII, France.  
 GOLAND, MARTIN—Midwest Research Institute, Kansas City 2, Missouri, U.S.A.  
 GOLDBERG, JOHN E.—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.  
 GOLOBOV, M.—Zelena 2, Praha XIX, Czechoslovakia.  
 GOOD, J. N.—19220 Dorothy Ave., Rocky River, Ohio, U.S.A.  
 GOODIER, J. N.—542 Guggenheim Laboratory, Stanford University, Palo Alto, California, U.S.A.  
 GORTLER, HENRY—Am Wasser 16, Oberwolfach (Baden) (17b), Germany.  
 GOTTSCHALK, W. H.—Box 6, College Hall, University of Pennsylvania, Philadelphia, Pennsylvania, U.S.A.  
 GRATCH, SERGE—Department of Mechanical Engineering, University of Pennsylvania, Philadelphia, Pennsylvania, U.S.A.  
 GREEN, A. E.—"Albury," Fieldhouse Lane, Durham, England.  
 GREEN, J. R.—CSIR Division of Aeronautics, Box 4331, G.P.O., Melbourne, Australia.  
 GREENBERG, H. J.—Brown University, Providence 12, Rhode Island, U.S.A.  
 GREENSPAN, MARTIN—National Bureau of Standards, Washington 25, D. C., U.S.A.  
 GREIDANUS, J. H.—Nationaal Luchtvaarlaboratorium, Sloteweg 145, Amsterdam, W, Holland.  
 GRINTER, L. E.—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.  
 GROSS, B.—Inst. Nacional de Tecnologia, Avenida Venezuela 82, Rio de Janeiro, Brazil.  
 GOVER, HORACE J.—Battelle Memorial Institute, Columbus 1, Ohio, U.S.A.  
 GUDERLEY, GOTTFRIED—c/o Commanding General, HQ AMC MCIAXA, Wright Field, Dayton, Ohio, U.S.A.  
 GUNDER, DWIGHT F.—Mechanics Department, Cornell University, Ithaca, New York, U.S.A.

## H

- HADJI-ARGYRIS, J.—Royal Aeronautical Society, 4 Hamilton Place, London, W.1, England.  
 HAENNI, E.—c/o Huyssoon, 18 Oak Ridge Place, Tuckahoe, York, U.S.A.  
 HAGERTY, W. W.—College of Engineering, University of Michigan, Ann Arbor, Michigan, U.S.A.  
 HAGG, A. C.—Westinghouse Research Laboratories, East Pittsburgh, Pennsylvania, U.S.A.  
 HALL, A. S.—Mechanical Engineering Department, Purdue University, Lafayette, Indiana, U.S.A.  
 HALSEY, GEORGE—Mallinckrodt Laboratory, Harvard University, Cambridge, Massachusetts, U.S.A.  
 HAMPL, M.—Jungmannova 29, Praha II, Czechoslovakia.  
 HANDELMAN, G. H.—Department of Mathematics, Carnegie Institute of Technology, Pittsburgh 13, Pennsylvania, U.S.A.  
 HARINGX, J. A.—Philips Research Laboratories, Eindhoven, Holland.  
 HARRIS, HERBERT, JR.—Special Weapons Department, Sperry Gyroscope Company, Great Neck, New York, U.S.A.  
 HARTBOWER, CARL E.—807 Xenia Street S. E., Washington 20, D. C., U.S.A.  
 HAUS, F. C.—100, Chaussee de Charleroi, Brussels, Belgium.  
 HAY, G. E.—Mathematics Department, University of Michigan, Ann Arbor, Michigan, U.S.A.  
 HAYES, WALLACE D.—Graduate Division of Applied Mathematics, Brown University, Providence 12, Rhode Island, U.S.A.  
 HEASLET, MAX A.—P. O. Box 402, Los Altos, California, U.S.A.  
 HEMP, W. S.—College of Aeronautics, Cranfield, Bletchley, Bucks, England.  
 HEMPEL, MAX—Kaiser-Wilhelm Institut für Eisenforschung, August-Thyssen-Str. 1, Düsseldorf, Germany.  
 HERBECK, MARGOT—Kaiser-Wilhelm Institut für Strömungsforschung, Bunsenstr. 10, Göttingen (20b), Germany.  
 HERÉNYI, M.—Technological Institute, Northwestern University, Evanston, Illinois, U.S.A.  
 HICKS, BRUCE L.—Interior Ballistics Laboratory, Ballistic Research Laboratories, Aberdeen Proving Ground, Maryland, U.S.A.  
 HILL, F. K.—Applied Physics Laboratory, Johns Hopkins University, Silver Spring, Maryland, U.S.A.  
 HILL, RODNEY—Cavendish Laboratory, Cambridge, England.  
 HOADLEY, HENRY H.—Research Department, United Aircraft Corporation, East Hartford, Connecticut, U.S.A.  
 HOGNER, EINAR—K. Tekniska Hogskolan, Stockholm 26, Sweden.  
 HOLL, D. L.—Mathematics Department, Iowa State College, Ames, Iowa, U.S.A.  
 HOLLANDER, ALADAR—California Institute of Technology, Pasadena 4, California, U.S.A.  
 HOLM, A. R.—Danmarks tekniske Højskole, Maskinkonstruktionsafdelingen, Oster Farimagsgade 2C, Copenhagen K, Denmark.  
 HOLMS, ARTHUR G.—3340 Rocky River Drive, Cleveland 11, Ohio, U.S.A.  
 HOLT, MARSHALL—Aluminum Research Laboratories, P. O. Box 772, New Kensington, Pennsylvania, U.S.A.  
 HOPKINS, H. G.—Department of Mathematics, The University, Manchester 13, Lancashire, England.  
 HORÁK, Z.—Technical University, Praha II, Karlovo nám. 13, Czechoslovakia.  
 HRENNIKOFF, ALEXANDER—Department of Civil Engineering, University of British Columbia, Vancouver, B. C., Canada.  
 HUBER, M. T.—Gdansk, Wrzeszcz, Limanowskiego 7, Poland.  
 HYMAN, F.—93 Stuyvesant Ave., Larchmont, New York, U.S.A.



## I

- INGERSLEV, FRITZ—Danmarks tekniske Højskole, Lydteknisk Laboratorium, Østervoldgade 10, Copenhagen K, Denmark.  
 IPPEN, ARTHUR T.—1-331, Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.  
 ISENBERG, J. S.—Graduate Division of Applied Mathematics, Brown University, Providence 12, Rhode Island, U.S.A.  
 IVEY, H. REESE—32, B. Elizabeth Road, Hampton, Virginia, U.S.A.

## J

- JACOVLEFF, D.—70 rue de Neufchatel, Bruxelles, Belgium.  
 JAEGER, CHARLES—30, Hampden Way, Bilton/Rigby, Warwickshire, England.  
 JAKOBSEN, A. A.—Parkveien 57, Oslo, Norway.  
 JÁKY, J.—Budapest, XI., Műegyetem, Hungary.  
 JOHANNESSEN, C. N. HOLM—Danmarks tekniske Højskoles Maskinlaboratorium, Øster Farimagsgade 2C, Copenhagen K, Denmark.  
 JOHANSEN, K. W.—Laboratoriet for Bygningsstatik, Østervold 10 Trappe B, Copenhagen K, Denmark.  
 JOHNSON, W. C., JR.—Department 20, Plant A, Goodyear Aircraft Corporation, Akron, Ohio, U.S.A.  
 JONAH, FRED C.—Chance-Vought Aircraft Corporation, Dallas, Texas, U.S.A.  
 JONES, ARTHUR L.—Ames Aeronautical Laboratory, Moffett Field, California, U.S.A.  
 JONES, ROBERT T.—Ames Aeronautical Laboratory, Moffett Field, California, U.S.A.  
 JORISSEN, ANDRE L.—Chef de Travaux, Université de Liège, Institut de Mécanique, 75 rue du Val Benoit, Liège, Belgium.

## K

- KAFADAR, AHMED D.—Armour Research Foundation, Chicago 16, Illinois, U.S.A.  
 KANE, E. D.—College Avenue Pool, University of California, Berkeley, California, U.S.A.  
 KANTROWITZ, ARTHUR—Graduate School of Aeronautical Engineering, Cornell University, Ithaca, New York, U.S.A.  
 KAPLAN, WILFRED—1308 Olivia Ave., Ann Arbor, Michigan, U.S.A.  
 KAUDERER, H.—Lehrstuhl für Techn. Mechanik und Wärmelehre, Kaplerstr. 10, Stuttgart-N, Germany.  
 KAYE, JOSEPH—Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.  
 KÊ, T. S.—Institute for Study of Metals, University of Chicago, Chicago 37, Illinois, U.S.A.  
 KEENAN, JOSEPH H.—Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.  
 KELLER, C.—Escher Wyss Engineering Works Ltd., Zurich, Switzerland.  
 KEMP, RICHARD H.—4583 West 174 St., Cleveland 11, Ohio, U.S.A.  
 KINCAID, W. M.—Mathematics Department, University of Michigan, Ann Arbor, Michigan, U.S.A.  
 KINDEM, SVERRE E.—Headteacher of Mechanics, Oslo Tekniske Skole, Oslo, Norway.  
 KLEMIN, ALEXANDER—Anderson Road, Greenwich, Connecticut, U.S.A.  
 KLOTTER, K.—Technische Hochschule, (17a) Karlsruhe, Germany.  
 KNAPP, ROBERT T.—Hydrodynamics Laboratory, California Institute of Technology, Pasadena 4, California, U.S.A.  
 KNIGHT, R. C.—D.G.W.R.D., Ministry of Supply, Thames House South, Millbank, London, S.W.1, England.

- KOCH, J. J.—Department for Mechanical Engineers, Nieuwe Laan 76, Delft, Holland.  
 KOCHANOWSKI, WERNER—Bunsenstr. 10, Göttingen, Germany.  
 KOCHENDORFER, ALBERT—Seestr. 71, Stuttgart-N (14a), Germany.  
 KOENIG, LLOYD R.—818 Olive St., St. Louis, Missouri, U.S.A.  
 KOGBETLIANTZ, ERVAND G.—Apt. 56, 438 West 116th St., New York 27, New York, U.S.A.  
 KOHN, PAVEL—Jungmannova 29, Praha II, Czechoslovakia.  
 KOYTER, W. T.—Mr. Rendorplaan 17, Amstelveen, Holland.  
 KOPPER, JOHN M.—Electrical Engineering Department, Johns Hopkins University, Baltimore 18, Maryland, U.S.A.  
 KOVASZNY, LESLIE S. G.—Department of Aeronautics, Johns Hopkins University, Baltimore 18, Maryland, U.S.A.  
 KOZESNIK, JAROSLAV—Jungmannova 29, Praha II, Czechoslovakia.  
 KRAHN, EDGAR—Böttingerstr. 6/8, Göttingen, Germany.  
 KRIEZIS, P.—Technical University of Athens, Churchstr. 4, Canningsquare Athens, Greece.  
 KRISTENSEN, HANS THYGESEN—Agnetevej 27, Lyngby, Denmark.  
 KRON, GABRIEL—General Electric Company, Schenectady 5, New York, U.S.A.  
 KRYNINE, D.—Research Associate in Soil Mechanics, Department of Civil Engineering, Yale University, New Haven, Connecticut, U.S.A.  
 KRZYWOBLOCKI, M. Z.—108 E. Armory Ave., Champaign, Illinois, U.S.A.  
 KUERTL, G.—109 Pierce Hall, Harvard University, Cambridge, Massachusetts, U.S.A.  
 KUETHE, A. M.—1516 Harbrooke, Ann Arbor, Michigan, U.S.A.  
 KUO, Y. H.—Graduate School of Aeronautical Engineering, Cornell University, Ithaca, New York, U.S.A.  
 KÜSSNER, HANS GEORG—Böttingerstr. 6/8, Göttingen, Germany.

## L

- LAITONE, E. V.—264 Kenyon Ave., Berkeley 8, California, U.S.A.  
 LANDWEBER, LOUIS—David Taylor Model Basin, Washington 7, D. C., U.S.A.  
 LANGER, B. F.—Transportation Engineering, Westinghouse Electric Corporation, East Pittsburgh, Pennsylvania, U.S.A.  
 LANGHAAR, H. L.—803 South Anderson St., Urbana, Illinois, U.S.A.  
 LAU, CONRAD A.—Aerodynamics Section, Chance Vought Aircraft, Stratford, Connecticut, U.S.A.  
 LEAN, G. H.—National Physical Laboratory, Teddington, Middlesex, England.  
 LE CORBEILLER, P.—Lyman Laboratory, Harvard University, Cambridge 38, Massachusetts, U.S.A.  
 LEE, E. H.—Graduate Division of Applied Mathematics, Brown University, Providence 12, Rhode Island, U.S.A.  
 LEE, GEORGE H.—U. S. Naval Postgraduate School, Annapolis, Maryland, U.S.A.  
 LEGGER, R. J.—Huessensstraat 14, Haarlem, Holland.  
 LEPPER, HENRY A., JR.—Civil Engineering Department, Yale University, New Haven, Connecticut, U.S.A.  
 LESSELLS, JOHN M.—Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.  
 LEVEN, MILTON M.—Westinghouse Research Laboratories, East Pittsburgh, Pennsylvania, U.S.A.  
 LEVY, JOSEPH—Hydrodynamics Laboratory, California Institute of Technology, Pasadena 4, California, U.S.A.  
 LEVY, SAMUEL—National Bureau of Standards, Washington, D. C., U.S.A.

- LEWIS, FRANK M.—Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.
- LEWIS, JOHN A.—Graduate Division of Applied Mathematics, Brown University, Providence 12, Rhode Island, U.S.A.
- LIBBY, PAUL A.—Polytechnic Institute of Brooklyn, Brooklyn 2, New York, U.S.A.
- LIEBER, PAUL—Polytechnic Institute of Brooklyn, Brooklyn 2, New York, U.S.A.
- LIEPMAN, H. P.—Goodyear Aircraft Corporation, Akron, Ohio, U.S.A.
- LILLEY, G. M.—College of Aeronautics, Cranfield, Bletchley, Bucks, England.
- LIN, C. C.—Room 2-175, Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.
- LIN, T. H.—96 New Cavendish St., London, W.1, England.
- LINDSAY, R. B.—Department of Physics, Brown University, Providence, Rhode Island, U.S.A.
- LING, C. B.—c/o Y. C. Fung, Guggenheim Laboratory, California Institute of Technology, Pasadena, California, U.S.A.
- LOMAX, HARVARD—770 Seale St., Palo Alto, California, U.S.A.
- LONDON, ALBERT—National Bureau of Standards, Washington, D. C., U.S.A.
- LUBAHN, J. D.—Research Laboratory, General Electric Company, Schenectady, New York, U.S.A.
- LUCASSEN, L. R.—Nationaal Luchtvaartlaboratorium, Sloteweg 145, Amsterdam, W, Holland.
- LYPE, E. F.—Armour Research Foundation, Chicago 16, Illinois, U.S.A.

## M

- McNOWN, JOHN S.—Hydraulics Laboratory, University of Iowa, Iowa City, Iowa, U.S.A.
- MAGINNIS, F. J.—Analytical Division, Central Station Engineering Divisions, General Electric Company, Schenectady 5, New York, U.S.A.
- MALKY, JOANNE STARR—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.
- MANJOINE, M. J.—Westinghouse Research Laboratories, East Pittsburgh, Pennsylvania, U.S.A.
- MANSON, S. S.—National Advisory Committee for Aeronautics, 1294 E. 115th St., Cleveland, Ohio, U.S.A.
- MARCH, H. W.—1825 Summit Ave., Madison 5, Wisconsin, U.S.A.
- MARIN, JOSEPH—8 Florida St., Dorchester, Massachusetts, U.S.A.
- MARKL, A. R. C.—Tube Turns, Inc., Louisville, Kentucky, U.S.A.
- MARTINELLI, R. C.—Department of Engineering, University of California, Berkeley, California, U.S.A.; deceased.
- MASING, GEORGE—Institut für Metallkunde, Hospitalstr. 12, Göttingen, Germany.
- MASON, WARREN P.—Bell Telephone Laboratories, Murray Hill, New Jersey, U.S.A.
- MASSONNET, CH.—Institut du Genie Civil, Université de Liège, Liège, Belgium.
- MASTOVSKY, OTAKAR—Praha II, Karlova n. 13, Czechoslovakia.
- MASUR, ERNEST F.—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.
- MAULBETSCH, J. L.—Kollmorgen Optical Corporation, Brooklyn, New York, U.S.A.
- MAZKEVICH, D. R.—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.
- MEHRINGER, FRANK J.—Victory Plastics Company, Hudson, Massachusetts, U.S.A.
- MEIER, J. H.—Research Engineer, Bucyrus-Erie Company, South Milwaukee, Wisconsin, U.S.A.
- MENDELSON, ALEXANDER—720 East 91 St., Cleveland, 8, Ohio, U.S.A.
- MERBT, HEINZ—Böttingerstr. 6/8, Göttingen, Germany.
- MERCHANT, M. E.—Cincinnati Milling Machine Company, Cincinnati 9, Ohio, U.S.A.
- MEYER, C. A.—A. G. T. Division, Westinghouse Corporation, Lester, Pennsylvania, U.S.A.
- MICHELSEN, H. F.—Rijksstraatweg 105, Duivendrecht (NH) Holland.
- MIKLOWITZ, JULIUS—Westinghouse Research Laboratories East Pittsburgh, Pennsylvania, U.S.A.
- MILES, JOHN W.—Department of Engineering, University of California, Los Angeles 24, California, U.S.A.
- MILLENSON, MORTON B.—3 Bergen Court, Apt. 1C, Bayonne, New Jersey, U.S.A.
- MILLER, BENJAMIN—114-55 118th St., Ozone Park 16, New York, U.S.A.
- MILLIKEN, WILLIAM F., JR.—293 South Union Road, Williamsville 21, New York, U.S.A.
- MILNE-THOMSON, L. M.—Royal Naval College, Greenwich, London, S.E.10, England.
- MINDLIN, R. D.—Department of Civil Engineering, Columbia University, New York 27, New York, U.S.A.
- MINORSKY, N.—Department of Mechanical Engineering, Stanford University, Stanford University, California, U.S.A.
- VON MISES, R.—Pierce Hall 109, Harvard University, Cambridge 38, Massachusetts, U.S.A.
- MISKOVSKY, LAD.—Technical University, Praha II, Karlovon. 13, Czechoslovakia.
- MÖLLER, HERMANN—Kaiser-Wilhelm Institut für Eisenforschung, August-Thyssen-Str. 1, Düsseldorf (22a), Germany.
- MORDUCHOW, MORRIS—Polytechnic Institute of Brooklyn, Brooklyn 2, New York, U.S.A.
- MORETTI, GINO—Corso Racconigi 32 bis, Torino, Italy.
- MORKOVIN, M. V.—Department of Aeronautical Engineering, University of Michigan, Ann Arbor, Michigan, U.S.A.
- MORRIS, E. H.—University of California, Los Angeles 24, California, U.S.A.; deceased.
- MOSEBACH, W. G. E.—Goodyear Aircraft Corporation, Akron, Ohio, U.S.A.
- MOSES, HARRY E.—Box 85, Pupin Physics Laboratories, Columbia University, New York, New York, U.S.A.
- MOTT, B. W.—9, Wayland Crescent, A.E.R.E. Chilton Site, Didcot, Berks, England.
- MÜHLEMANN, E.—ch. du Ier Août, Vésenaz, Genève, Switzerland.
- MUNK, WALTER H.—Scripps Institution of Oceanography, La Jolla, California, U.S.A.
- MURPHY, GLENN—101 Laboratory of Mechanics, Iowa State College, Ames, Iowa, U.S.A.
- MYKLESTAD, N. O.—Department of Theoretical and Applied Mechanics, University of Illinois, Urbana, Illinois, U.S.A.
- MYLONAS, C.—Aero-Research, Ltd., Duxford, Cambridge, England.

## N

- NADAI, A.—Westinghouse Research Laboratories, East Pittsburgh, Pennsylvania, U.S.A.
- NECHLEBA, MIROSLAV—Brno 16, Smejkalova 19, CSR, Czechoslovakia.
- NEIBURGER, M.—Department of Meteorology, University of California, Los Angeles 24, California, U.S.A.
- NEIFERT, H. R.—Timken Roller Bearing Company, 1835 Deuber Ave., SW, Canton 6, Ohio, U.S.A.
- NEKOLNÝ, JAROSLAV—Truhlářská 18, Praha II, Czechoslovakia.
- NELSON, W. C.—Department of Aeronautical Engineering, University of Michigan, Ann Arbor, Michigan, U.S.A.

NEMÉNYI, PAUL—3015 Legation St., N. W., Washington, D. C. U.S.A.

NEWELL, JOSEPH S.—Guggenheim Aeronautical Laboratory, Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A.

NEWMARK, N. M.—111 Talbot Laboratory, University of Illinois, Urbana, Illinois, U.S.A.

NILSON, RAGNAR—Wennerbergsgatan 1, Stockholm K, Sweden.

NITZBERG, GERALD E.—707 Harvard St., Palo Alto, California, U.S.A.

NORRIS, R. HOSMER—1385 Regent St., Schenectady 8, New York, U.S.A.

NOTHMAN, G. A.—Research Engineer, Armour Research Foundation, Chicago 16, Illinois, U.S.A.

NOWACKI, WITOLD—Politechnika, Gdansk-Wrzeszcz, Poland.

## O

ÖDMAN, SVEN—Ösbyvägen 19, Djursholm 2, Sweden.

ODQVIST, FOLKE K. G.—Royal Institute of Technology, Stockholm, Sweden.

OLSSON, R. GRAN—Norges Tekniske Hogskole, Trondheim, Norway.

OLSZAK, W.—Akademia Górnicza, Al. Mickiewicza 30, Kraków, Poland.

OOSTEROM, T. v.—Nationaal Luchtvaartlaboratorium, Sloteweg 145, Amsterdam W, Holland.

OROWAN, E.—Cavendish Laboratory, Cambridge, England.

OSGOOD, WM. R.—David Taylor Model Basin, Navy Department, Washington 7, D. C., U.S.A.

## P

PACK, D. C.—University College, Dundee, Scotland.

PALM, J. H.—Nationaal Luchtvaartlaboratorium, Sloteweg 145, Amsterdam W, Holland.

PARKUS, HEINZ—18, Hockegasse 69, Vienna, Austria.

PEI, MING LUNG—c/o Mr. H. S. Chao, 345/5 Yuan-Kia Rd., Shanghai, China.

PELL, WILLIAM—Graduate Division of Applied Mathematics, Brown University, Providence 12, Rhode Island, U.S.A.

PERL, WILLIAM—National Advisory Committee for Aeronautics, FPR1, Cleveland Airport, Cleveland, Ohio, U.S.A.

PETERSON, R. E.—Westinghouse Research Laboratories, East Pittsburgh, Pennsylvania, U.S.A.

PETROFF, A.—c/o Hughes Aircraft Company, Culver City, California, U.S.A.

PHILLIPS, ARIS—Mechanical Engineering Department, Stanford University, California, U.S.A.

PHILLIPS, C. E.—National Physical Laboratory, Teddington, Middlesex, England.

PICKETT, GERALD—Applied Mechanics Department, Kansas State College, Manhattan, Kansas, U.S.A.

PIELEMAYER, W. H.—Department of Physics, Pennsylvania State College, State College, Pennsylvania, U.S.A.

PIGFORD, R. L.—Division of Chemical Engineering, University of Delaware, Newark, Delaware, U.S.A.

PIKE, H. H. M.—68 Hayes Road, Bromley, Kent, England.

PIPES, LOUIS A.—University of California, Los Angeles 24, California, U.S.A.

PLANTEMA, F. J.—Nationaal Luchtvaartlaboratorium, Sloteweg 145, Amsterdam W, Holland.

POPE, J. A.—Mechanical Engineering Department, University, St. George's Square, Sheffield 10, England.

PORTER, A.—Military College of Science, Shrivenham, Berks, England.

PÖSCHL, TH.—Director of the Institute for Applied Mechanics, 17a Karlsruhe (Baden), Wendstr. 5, Germany.

PRAGER, W.—Brown University, Providence 12, Rhode Island, U.S.A.

PRANDTL, L.—Calsowstr. 15, Göttingen, Germany.

PRIM, R. C., 3RD.—Building 90, Naval Ordnance Laboratory, White Oak, Maryland, U.S.A.

PUCKETT, A. E.—California Institute of Technology, Pasadena 4, California, U.S.A.

## Q

QUINTAL, ROBERT, 6100 Wilderton, Montreal, Que., Canada.

## R

RAMBERG, WALTER—National Bureau of Standards, Washington 25, D. C., U.S.A.

RANKIN, A. W.—Turbine Engineering Division, General Electric Company, Schenectady, New York, U.S.A.

RANNIE, W. D.—California Institute of Technology, Pasadena 4, California, U.S.A.

REED, F.—Room 3-382, Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.

REGIER, ARTHUR A.—12 North Pine St., Hampton, Virginia, U.S.A.

REINER, M.—North Talpith, Jerusalem, Palestine

REISSNER, H. J.—35 Clark St., Brooklyn 2, New York, U.S.A.

RIBNER, HERBERT S.—908 Ferguson Ave., Newport News, Virginia, U.S.A.

RIEGELS, FRITZ W.—Zeppelinstr. 4, Göttingen, Germany.

RIGHTMIRE, B. G.—Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.

RIPLING, E. J.—Case Institute of Technology, Cleveland 6, Ohio, U.S.A.

RIVLIN, R. S.—56 Herga Court, Harrow-on-the-Hill, Middlesex, England.

ROBERTSON, J. M.—Department of Civil Engineering, Pennsylvania State College, State College, Pennsylvania, U.S.A.

ROBINSON, A.—College of Aeronautics, Cranfield, Bletchley, Bucks, England.

ROCHA, MANUEL—Laboratorio de Engenharia Civil, Av. R. visco Pais, Lisboa, Portugal.

ROHSENOW, WARREN M.—Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.

ROOP, W. P.—Structural Research Laboratory, Swarthmore College, Swarthmore, Pennsylvania, U.S.A.

ROSENBERG, PHILIP—Armour Research Foundation, Chicago 16, Illinois, U.S.A.

ROSENTHAL, D.—University of California, Los Angeles 24, California, U.S.A.

ROSS, JOHN G.—Drifts, Chinnor Hill, Chinnor, Oxfordshire, England.

ROST, ULRICH—Bunsenstr. 10, Göttingen, Germany.

ROTTA, JULIUS—Zeppelinstr. 3, Göttingen, Germany.

ROUSE, HUNTER—Hydraulics Laboratory, University of Iowa, Iowa City, Iowa, U.S.A.

RUDNICK, PHILIP—Department of Physics, Vanderbilt University, Nashville 4, Tennessee, U.S.A.

## S

SACHS, GEORGE—Case Institute of Technology, Cleveland 6, Ohio, U.S.A.

SADOWSKY, MICHAEL—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.

SAG, NICHOLAS—Melbourne Technical College, 124 Latrobe Street, Melbourne, Australia.

SAIBEL, EDWARD—Carnegie Institute of Technology, Pittsburgh 13, Pennsylvania, U.S.A.



- SALEME, ERNESTO—Mechanics Department, Armour Research Foundation, Chicago 16, Illinois, U.S.A.
- SALERNO, VITO L.—Brooklyn Polytechnic Institute, Brooklyn 2, New York, U.S.A.
- SALMON, VINCENT—1300 Cloud Ave., Menlo Park, California, U.S.A.
- SALVADORI, M. G.—Department of Civil Engineering, Columbia University, New York 27, New York, U.S.A.
- SAUER, ROBERT—34 Romanstr., 13b, Munich (Bavaria), Germany.
- SAYRE, M. F.—Union College, Schenectady, New York, U.S.A.
- SCHAUB, CYRIL—Fagersta Bruk, Fagersta, Sweden.
- SCHEFER, MANFRED—Bunsenstr. 10, Göttingen, 20b, Germany.
- SCHERBERG, M. G.—8038 Madison Ave., St. Louis County 14, Missouri, U.S.A.
- SCHLAG, ALB.—133 rue des Vennes, Liège, Belgium.
- SCHLECHTWEIG, H.—Bredeneyerstr. 25, Essen-Bredeney, Germany.
- SCHNADT, HENRI M.—11 Av. Ysaye, Brussels, Belgium.
- SCHNEIDER, F. B.—Locomotive Engineering Division, General Electric Company, Erie 2, Pennsylvania, U.S.A.
- SCHOENHERR, KARL E.—College of Engineering, University of Notre Dame, Notre Dame, Indiana, U.S.A.
- SCHROEDER, WILLIAM—9664 Wheatland Ave., Sunland, California, U.S.A.
- SCHULTZ, B. H.—NV Philips Gloeilampenfabrieken, Afd. Nat. Lab., Eindhoven, Holland.
- SEARS, W. R.—Graduate School of Aeronautical Engineering, Cornell University, Ithaca, New York, U.S.A.
- SEITZ, FREDERICK—Physics Department, Carnegie Institute of Technology, Pittsburgh 13, Pennsylvania, U.S.A.
- SEKERA, Z.—Meteorology Department, University of California, Los Angeles 24, California, U.S.A.
- SHANLEY, F. R.—2062 North Vine St., Los Angeles 28, California, U.S.A.
- SHAPIRO, ASCHER H.—Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A.
- SHAW, F. S.—CSIR Division of Aeronautics, Box 4331, GPO Melbourne, Victoria, Australia.
- SHAW, MILTON C.—Room 3-166, Massachusetts Institute of Technology, Cambridge 39, Massachusetts, U.S.A.
- SHEETS, H. E.—Goodyear Aircraft Corporation, Akron, Ohio, U.S.A.
- SHOBERT, ERLE I., 2ND—Engineering Department, Stackpole Carbon Company, St. Mary's, Pennsylvania, U.S.A.
- SHORT, BYRON E.—P.O. Box 1659, University Station, Austin, Texas, U.S.A.
- SHU, S. S.—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.
- SIEBEL, E.—Cannstatterstr. 2/2, Stuttgart-O, Germany.
- SKEMPTON, A. W.—Imperial College, London, S.W.7, England.
- SLOTBOOM, J. G.—Nationaal Luchtvaartlaboratorium, Sloteweg 145, Amsterdam W, Holland.
- SMELT, R.—Naval Ordnance Laboratory, White Oak, Silver Spring, Maryland, U.S.A.
- SMETANA, J.—Technical University, Solinova 7, Praha XIX, Czechoslovakia.
- SMILG, BENJAMIN—2259 Emerson Ave., Dayton 6, Ohio, U.S.A.
- SMITH, C. B.—Research Department, United Aircraft Corporation, East Hartford 8, Connecticut, U.S.A.
- SMITH, C. W.—Aircraft Gas Turbine Engineering Division, General Electric Company, Lynn, Massachusetts, U.S.A.
- SMITH, EASTMAN—University of Missouri, Columbia, Missouri, U.S.A.
- SMITH, ROY C. T.—New England University College, Armidale, N.S.W., Australia.
- SNEDDON, IAN N.—University of Glasgow, Glasgow, W.2, Scotland.
- SNIDER, J. F.—Goodyear Aircraft Corporation, Akron, Ohio, U.S.A.
- SODERBERG, C. RICHARD—Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A.
- SOKOLNIKOFF, I. S.—Department of Mathematics, University of California, Los Angeles 24, California, U.S.A.
- SOKOLOFF, V. P.—2021 Vernon Drive, Golden, Colorado, U.S.A.
- SOLF, KARL—Böttingerstr. 6/8, Göttingen, Germany.
- SOROKA, WALTER W.—Engineering Design Division, University of California, Berkeley, California, U.S.A.
- ŠPAČEK, LADISLAV—Jungmannova 29, Praha II, Czechoslovakia.
- SPANNHAKKE, WILHELM—David Taylor Model Basin, Washington 7, D.C., U.S.A.
- SPECHT, ROBERT D.—North Hall, University of Wisconsin, Madison 6, Wisconsin, U.S.A.
- SPREITER, JOHN R.—615 Menlo Ave., Menlo Park, California, U.S.A.
- SQUIRE, H. B.—R.A.E., Farnborough, Hants, England.
- STACK, JOHN—112 Hampton Roads Ave., Hampton, Virginia, U.S.A.
- STEPHENSON, E. B.—Naval Research Laboratory, Code 3800, Navy Department, Washington 20, D.C., U.S.A.
- STERNBERG, E.—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.
- STERNBERG, JOSEPH—Ballistic Research Laboratory, Aberdeen Proving Ground, Maryland, U.S.A.
- STEWART, H. J.—California Institute of Technology, Pasadena 4, California, U.S.A.
- STILES, WILLIAM B.—F. and A. M. Department, Iowa State College, Ames, Iowa, U.S.A.
- STOMMEL, HENRY—Oceanographic Institute, Woods Hole, Massachusetts, U.S.A.
- STOUT, ERNEST G.—Consolidated Vultee Aircraft Corporation, San Diego, California, U.S.A.
- STREETER, V. L.—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.
- STURM, R. G.—Heavilon Hall, Purdue University, Lafayette, Indiana, U.S.A.
- STRÜSSI, F.—Eidg. Techn. Hochschule, Zurich, Switzerland.
- SVED, G.—S. A. School of Mines and Industries, Adelaide, South Australia.
- SWAINGER, K. H.—Imperial College, South Kensington, London, S.W.7, England.
- SYMONDS, P. S.—Graduate Division Applied Mathematics, Brown University, Providence 12, Rhode Island, U.S.A.
- SZÉCHY, CH.—Roham u. 3, Budapest I, Hungary.
- SZEWALSKI, ROBERT—Politechnika, Gdansk, Poland.

## T

- TAYLOR, E. H.—University of California, Los Angeles 24, California, U.S.A.
- TEICHMANN, FREDERICK K.—New York University, University Heights, New York 53, New York, U.S.A.
- TENOT, A.—35 bis, avenue de la Belle Gabrielle, Nogent Sur Marne, Seine, France.
- TETERVIN, NEAL—208 Armstrong Drive, Hampton, Virginia, U.S.A.
- THOMPSON, M. J.—Department of Aeronautical Engineering, University of Texas, Austin, Texas, U.S.A.
- THOMPSON, STANLEY—7346 West 83rd St., Los Angeles 45, California, U.S.A.
- THOMSON, W. T.—114 Engineering Education Building, University of Wisconsin, Madison, Wisconsin, U.S.A.

- TICHVINSKY, L. M.—Washington University, St. Louis 5, Missouri, U.S.A.
- TIELCKE, JOH.—Böttingerstr. 6/8, Göttingen, Germany.
- TIMMAN, R.—Nationaal Luchtvaartlaboratorium, Sloterweg 145, Amsterdam W, Holland.
- TISON, L. J.—University de Gand, rue des Ronces 61, Gentbrugge, Belgium.
- TODD, F. H.—David Taylor Model Basin, Washington 7, D. C., U.S.A.
- TOULOUKIAN, Y. S.—Mechanical Engineering Building, Purdue University, Lafayette, Indiana, U.S.A.
- TOWNSEND, A. A.—Emmanuel College, Cambridge, England.
- TRENT, HORACE M.—Naval Research Laboratory (3830), Washington 20, D.C., U.S.A.
- TRIBUS, MYRON—University of California, Los Angeles 24, California, U.S.A.
- TROOST, L.—Delft University of Technology, Delft, Holland.
- TRUESDELL, C. A.—Code 3830, Mechanical Division, Naval Research Laboratory, Washington 20, D.C., U.S.A.
- TSCHBOTARIOFF, GREGORY P.—Engineering Building, Princeton University, Princeton, New Jersey, U.S.A.
- TSIEN, H. S.—33-408, Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A.
- TURNER, M. J.—Engineering Department, Chance Vought Aircraft, P. O. Box 5907, Dallas, Texas, U.S.A.

## U

- UHLENBECK, G. E.—Harrison M. Randall Laboratory of Physics, University of Michigan, Ann Arbor, Michigan, U.S.A.

## V

- VANONI, VITO A.—California Institute of Technology, Pasadena 4, California, U.S.A.
- VAZSONYI, ANDREW—3202 East Foothill Blvd., Pasadena 8, California, U.S.A.
- VERMEULEN R.—August Sniederslaan 18, Eindhoven, Holland.
- VEY, EBEN—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.
- VIGNESS, IRWIN—Naval Research Laboratory, Circle 460, Washington 20, D. C., U.S.A.
- VINCENTI, WALTER—Ames Aeronautical Laboratory, Moffett Field, California, U.S.A.
- VLAHAKIS, P.—1502 West Bryn Mawr, Chicago 26, Illinois, U.S.A.
- VOGELPOHL, GEORG—Bunsenstr. 16, Göttingen, Germany.
- VOLTERRA, ENRICO—via in Lucina 17, Roma, Italy.

## W

- WAGNER, WARREN O.—California Institute of Technology, Pasadena 4, California, U.S.A.
- WAHL, A. M.—Westinghouse Research Laboratories, East Pittsburgh, Pennsylvania, U.S.A.
- WALSH, J. PAUL—Code 474, Sound Division, Naval Research Laboratory, Washington 20, D. C., U.S.A.
- WALTHER, A.—Technische Hochschule, Darmstadt, 16, Germany.
- WAN, CONRAD C.—7207 Inwood Road, Dallas 9, Texas, U.S.A.
- WANG, C. T.—Department of Aeronautics, New York University, New York 53, New York, U.S.A.
- WANG, TSUN KUEI—College of Engineering, National Peking University, Peiping, China.
- WARREN, C. E.—Department of Electrical Engineering, Ohio State University, Columbus, Ohio, U.S.A.
- WATTENDORF, F. L.—43 West Riverview, Dayton, Ohio, U.S.A.
- WAY, STEWART—Westinghouse Research Laboratories, East Pittsburgh, Pennsylvania, U.S.A.

- WEHAUSEN, J. V.—David Taylor Model Basin, Navy Department, Washington 7, D. C., U.S.A.
- WEIBULL, W.—Aktiebolaget Bofors, Bofors, Sweden.
- WEINBAUM, SIDNEY—Jet Propulsion Laboratory, Pasadena, California, U.S.A.
- WELCH, W. P.—Research Laboratories, Westinghouse Electric Corporation, East Pittsburgh, Pennsylvania, U.S.A.
- WEVER, K.—August-Thyssen-Str. 1, Dusseldorf, Germany.
- WHITE, M. P.—Whately, Massachusetts, U.S.A.
- WIEGHARDT, KARL—Stegemühlenweg 61, Göttingen, 20b, Germany.
- WIERZBICKI, WITOLD—Lwowska 7, Warsaw, Poland.
- WIJCKER, H.—Nationaal Luchtvaartlaboratorium, Sloterweg 145, Amsterdam W, Holland.
- VAN WIJNGAARDEN, A.—Mathematisch Centrum, Wittenbachstraat 5, Amsterdam O, Holland.
- WIKANDER, O. R.—900 South Negley Ave., Pittsburgh 6, Pennsylvania, U.S.A.
- WILD, J. M.—Graduate School of Aeronautical Engineering, Cornell University, Ithaca, New York, U.S.A.
- WILHELM, RICHARD H.—Department of Chemical Engineering, Princeton University, Princeton, New Jersey.
- WILKES, M. V.—University Mathematical Laboratory, Free School Lane, Cambridge, England.
- WILLERS, F. A.—Dorotheenstr. 12, Dresden, A20, Germany.
- WILLIAMS, A. O., JR.—Physics Department, Brown University, Providence 12, Rhode Island, U.S.A.
- WILLIAMS, HARRY A.—Civil Engineering Department, Stanford University, Stanford, California, U.S.A.
- WILLS, H. A.—CSIR Division of Aeronautics, Box 4331 GPO, Melbourne, Australia.
- WILSON, R. G.—Goodyear Aircraft Corporation, Akron, Ohio, U.S.A.
- WINGREN, R. M.—Mechanical Engineering Department, College Station, Texas, U.S.A.
- WINTER, GEORGE—Lincoln Hall, Cornell University, Ithaca, New York, U.S.A.
- WINTERKORN, HANS F.—School of Engineering, Princeton University, Princeton, New Jersey, U.S.A.
- WOJTASZAK, I. A.—Department of Engineering Mechanics, University of Michigan, Ann Arbor, Michigan, U.S.A.
- WUEST, WALTER—Böttingerstr. 6/8, Göttingen, Germany.
- WUNDHEILER, A. W.—Illinois Institute of Technology, Chicago 16, Illinois, U.S.A.
- WYKER—Nationaal Luchtvaartlaboratorium, Amsterdam W, Holland.

## Y

- YORGIADIS, ALEXANDER—Thompson Road Campus, Syracuse University, Syracuse, New York, U.S.A.
- YOSHIHARA, HIDEO—275 Hillside Road, Skyway Park, Osborn, Ohio, U.S.A.
- YOUNG, A. D.—College of Aeronautics, Cranfield, Bletchley, Bucks, England.
- YOUNG, DANA—157 Engineering Building, University of Texas, Austin 12, Texas, U.S.A.
- YUAN, S. W.—Polytechnic Institute of Brooklyn, Brooklyn 2, New York, U.S.A.

## Z

- ŽALUDOVÁ, A. H.—T. O. Výskum Kovo., Jungmannova 20, Praha II, Czechoslovakia.
- ZAMBOKY, A. N.—2830 Beachwood Blvd., Pittsburgh 17, Pennsylvania, U.S.A.
- ZENER, CLARENCE—Institute for Study of Metals, University of Chicago, Chicago, Illinois, U.S.A.

## Other Reviewing or Abstracting Services

IN the following is presented for the readers' information a list of other sources which maintain regular reviewing or abstracting services, which border upon or partly include the field covered by *APPLIED MECHANICS REVIEWS*. All those known to the editors are listed; information regarding others which should be included is solicited.

### A

*Aeronautical Engineering Review*; monthly; Institute of the Aeronautical Sciences, 2 East 64th Street, New York 21, New York, U.S.A.; abstracts of aeronautics articles, reviews of aeronautics books.

*L'Aerotecnica*; bimonthly; Associazione Italiana di Aeronautica, Piazza S. Bernardo 101, Rome, Italy; limited number of aeronautics reviews; in Italian.

*Aperçu de la Presse Technique*; monthly; Syndicat Général des Industries Mécanique et Transformatrices des Métaux, 11 Avenue Hoche, Paris 8e, France; brief abstracts of articles on industrial materials and processes; in French.

### B

*British Abstracts*: Section A—Chemistry, Physiology, etc.; Section B—Chem. Eng., Industrial Chemistry, Metallurgy, Agriculture, etc.; Section C—Analysis and Apparatus (bimonthly); monthly; Bureau of Abstracts, 9/10 Savile Row, London, W.1, England; expert abstracts of literature in field.

*Bulletin Analytique*: Part I—Mathematical and Physical Sciences and their Applications; Part II—Biological Sciences; monthly; Service de Documentation du C.N.R.S., 18 rue Pierre-Curie, Paris 5e, France; brief abstracts of scientific literature; in French.

### C

*CADP Technical Data Digest* (formerly ATI Tech. Data Dig.); semimonthly; Air Documents Division, Intelligence Department, Air Materiel Command, Wright Field, Dayton, Ohio, U.S.A.; abstracts of aeronautics articles, principally from U.S.A.

*Chemical Abstracts*; semimonthly; American Chemical Society, 1155 16th Street N. W., Washington, D. C., U.S.A.; expert abstracts, with very complete coverage in field, which includes Metallurgy, Plastics, Glass, Cement, Lubricants, etc., mainly from chemical viewpoint.

### E

*Engineers' Digest*; monthly; E. D. Publications, 1 Madison Avenue, New York 10, New York, U.S.A.; digest of engineering developments outside U.S.A.

*Engineering Index*; weekly; Engineering Index Service, 29 West 39th Street, New York 18, New York, U.S.A.; library card service, giving brief abstracts of world technical literature.

### G

*Geophysical Abstracts*; quarterly; U.S. Bur. of Mines and U.S. Geol. Survey, Government Printing Office, Washington, D. C., U.S.A.; abstracts of literature in field.

### I

*Index Aeronauticus*; monthly; Ministry of Supply, Room 5042, Thames House, Millbank, S.W.1, England; abstracts of articles on aeronautical research, production and operation.

### M

*Mathematical Reviews*; monthly; American Mathematical Society, Brown University, Providence 12, Rhode Island, U.S.A.; critical reviews of pure and applied mathematics literature.

*Metallurgical Abstracts* (supplement to *Journal of the Institute of Metals*); monthly; Institute of Metals, 4 Grosvenor Gardens, London, S.W.1, England; abstracts in metallurgy, general and nonferrous.

### N

*Naval Propulsive Power*; monthly; Institute of Research, Lehigh University, Bethlehem, Pennsylvania, U.S.A.; digest of literature in field.

### P

*Physics Abstracts*; see *Science Abstracts*

### R

*Railway Engineering Abstracts*; bimonthly; Institute of Civil Engineers, Great George Street, London, S.W.1, England; abstracts of articles in field.

*Revista di Aeronautica*; monthly; Associazione Culturale Aeronautica, Piazza del Popolo 18, Rome, Italy; limited number of aeronautics reviews; in Italian.

*Road Abstracts* (supplement to *J. Inst. Municipal Engrs.*); monthly; Department of Scientific and Industrial Research, 3 Central Buildings, Mathew Parker St., London, S.W.1, England; abstracts of literature in field.

### S

*Science Abstracts*: Section A—Physics Abstracts; Section B—Electrical Engineering; monthly; The Institution of Electrical Engineers, Savoy Place, London, W.C.2, England; expert reviews of scientific literature in fields.

### Z

*Zentralblatt für Mathematik*; approximately monthly until about 1943 when it was discontinued, but reported to be recently revived; Springer Verlag, Neuenheimer Landstrasse 24, Heidelberg, Germany; critical reviews of mathematics literature; principally in German.

(*Zentralblatt für Mechanik*; approximately monthly until about 1943 when it was discontinued; Springer Verlag, Neuenheimer Landstrasse 24, Heidelberg, Germany; critical reviews of mechanics literature; principally in German.)